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Rail-Road News.

Norfolk and Petersburg Railroad.

The Virginia House of Delegates have passed a bill granting a charter to a company to construct a railroad between Norfolk and Petersburg. The charter contains a provision requiring the road to connect with the Southside railroad, at or near its eastern terminus.

The Pottsville Emporium states that it is in contemplation to construct a railroad from Wilkesbarre to Scrantonia, on the Lackawana, and to form a connection from that point with the New York and Erie Railroad. The completion of these two short roads will form a continuous line of railroad and canal from Philadelphia to the town of Erie, the distance being not less than from New York to Erie.

The earnings of the Erie Railroad for March will show quite as large, if not a larger increase over March of last year, than February did over the previous February. The passenger receipts are much larger than in February. The entire road will be completed by the 1st of May, although it may not be operated with regular trains for a week or two afterwards.

The subscription to the Illinois Central Railroad has been filled, and the demand for the stock far exceeded the amount needed.

The inhabitants of Canada are full of railroad enthusiasm just now.

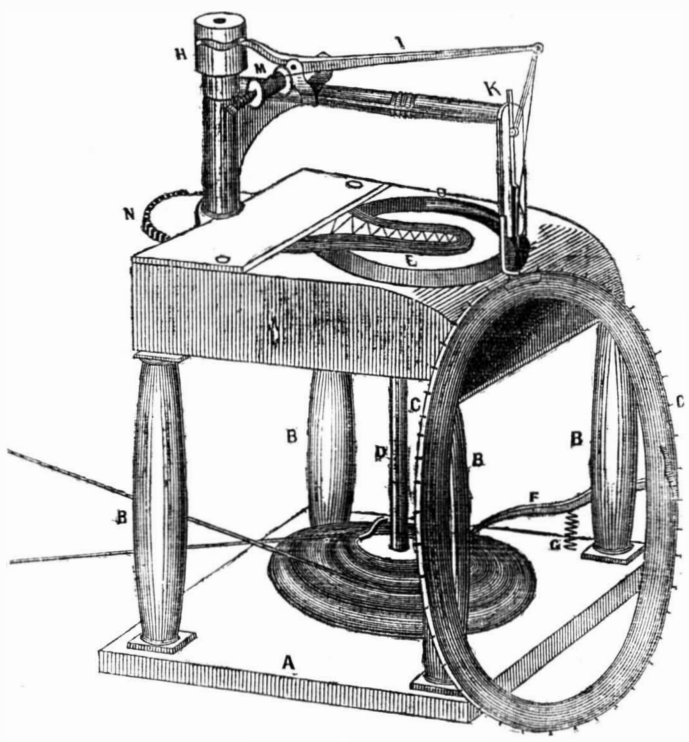
The Montreal Herald states that the county of Middlesex has agreed to subscribe $100,000 to the stock of the Great Western Railroad. This makes $100,000 subscribed by the municipalities between Hamilton and London, a distance of 80 miles.

The Directors of the Vermont Central and Rutland Railroad have reported without making any adjustment in regard to competition for the northern business.

A Mountain of Magnesia in California.

On Pitch (or Pitt) River, the principal affluent of the Sacramento, which flows through a charming valley, and about five days journey from Goose Lake, there is a hill of pure carbonate of Magnesia, 100 feet high. Much of it is perfectly white, while some is more or less discolored with iron, as if a painter had been striving to give effect by a coloring of light and shade. Large masses were easily detached, which, rolling down into the river that washed its base, floated off as light and buoyant as cork, until it became saturated with water. A thousand wagons could be loaded in a very short time, and there is enough to supply the whole world. For three days travel below, the soil seems to be impregnated with it, and the banks of the river formed of it.

LEROW AND BLODGETT'S SEWING MACHINE.---Figure 1.

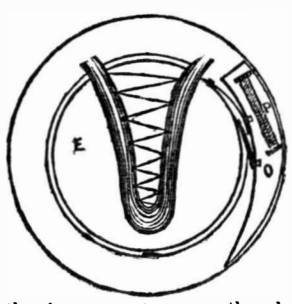


Our first number of Volume 5 was illustrated by engravings of the Sewing Machine belonging to the gentleman whose names are at the head of this article. By referring to the description and engravings of that machine, and comparing the same with this, a great difference will be perceived, and the improvement will at once be made manifest.

Fig. 1 is a perspective view, and fig. 2 is a plan view of the shuttle race: the same letters re to like parts.

This machine is represented as driven by a band from a line of shafting. A is the bedplate of the machine; B B are the posts; C C is a feed ring with fine teeth on it, to feed the cloth, to be sewn into the needle. This ring has not a horizontal motion, like the old machine, but is vertical, and much more convenient. It is moved round by a ratchet, F, which has a spring, G, attached to it. This ratchet catches into teeth on the back part of said ring, C, and is operated by the revolving cam pulley driven by the band. This ratchet

Fig. 2.



moves the ring so as to move the cloth forward every stitch length exactly. D is a vertical spindle moved by the band passing round the pulley below This spindle drives the shuttle and operates the needle. On its top under the crown-plate, there is a pinion gearing into the pinion, N, on the needle spindle, H. M is the spool of thread on the fixed bracket; I is the needle arm, and K is the needle head. The thread will be observed passing down and through the eye of the needle, which is near the point, being thereby different from common needles: the needle is a peculiar and improved one; it has a vertical groove on both sides, running to the point, whereby the thread lies close, and forms a round needle altogether. There is a cam groove on the top of the spindle, H. It will therefore be observed that, as the said spindle revolves, the groove will guide the end of the needle arm to give the needle a reciprocating up and down motion. E is the shuttle disc; the shuttle is a crooked instrument, represented by O, fig. 2; it has a spool of thread, P, in it, like a weaver's shuttle; it moves round in the outside circle, but is moved by the inside disc, E, which revolves, and there are two side springs and notches, which enable the said disc to hold on, as it were, and carry round the shuttle. When the needle goes through the cloth it carries its thread double along with it, which is slightly held by the cloth in return, and forms a loop inside, then the shuttle comes under it at that instant, passes through the loop, and thus the two threads are locked; and when the shuttle is on the opposite of the circle of its course, the needle is farthest drawn up, and this action tightens the stitch, which is then drawn tight, nearly like a saddler's. The laced work seen in figures 1 and 2 is a piece of cloth sewn on a projection for slightly resisting the motion of the shuttle thread underneath, to make it draw tight across the circle while the shuttle is passing around. It will be observed that the great space between the needle and the back spindle, llows large folds of cloth to be sewed with great facility.

Last week we visited the tailoring factory, No. 33 Gold street, this city, and were much surprised to find thirty of the above machines running on clothing, and twenty sewing up bags. These machines are attended by girls, and have been in active operation for a year. They are driven by steam power, and so rapid is their operation, that the thirty machines turn out 300 pairs of pantaloons in one day, and they could, if driven, have turned out 600 pairs. The superiority of the rotary machine over the reciprocating one, consists in the continued and uniform action and motion of the shuttle, there is no stopping its motion to make a return stroke, consequently no jarring and less liabilily to get out of order, and for this reason its speed can be greatly increased. No less than 60,000 caps were made in this factory in six months. We saw fine coats, every stitch, except the button holes, put in by this machine, and the work could not be surpassed. The sewing is stronger than by hand, and wholesale goods made by this machine are better and command a higher price than the hand-made clothes. The stitching is beautiful and is alike on both sides of the cloth. In this factory there is a machine for turning the bags from the inside out, as the inside is stitched outside. It is a simple and good contrivance, consisting of a tube like a stove pipe, over which a girl draws a stitched bag, inside out, when a reciprocating leg comes down, strikes the bottom of the bag into the tube, thus folding the inside into the inside. The clothes are pressed by men, and here this heavy hand labor is relieved by a pressing machine, which consists of a simple lever operated by the foot of the presser acting upon a stirrup, which brings down the lever to act effectually upon the seams of the clothes. Mr. Lerow has been in Europe and secured patents in England, Scotland, France, and Belgium, and from what we have seen, it is our opinion that the time is not far distant when all sewing, excepting artistic ornamental work, will be done by machinery. At present there is another factory in Eleventh street, this city, where there are 50 of the above machines running, and there is a factory in Boston, running 100 machines: such are the triumphs of inventive skill and labor. The profits of running these machines, we have learned, are enormous, and no wonder, when one girl by such a small machine will sew six overcoats in one day, and a very expert hand 20 pairs of pantalooons.

Curious Species of Barter.

In the district of Bemin Sooar (in Western Barbary), a mountainous country inhabited entirely by Berber tribes, there is one place where, during the fair, a barter of a very curious kind takes place. This fair is only held once a-year, and is chiefly resorted to for the purpose of bachelors finding wives, married men adding to their matrimonial treasures, and maidens or widows getting husbands. In fact, the whole affair resolves itself into the women selling themselves, but to escape the ignomy of such a proceedure, the traffic is carried on as follows:—Each maiden desiring to enter into wedlock dresses herself in her best and most becoming attire, and taking with her a piece of cloth of her own weaving, sits down unveiled in the market-place. The men, both young and old, who are candidates for matrimony, parade about the market examining the texture of the cloth displayed by the ladies, and scrutinising at the same time their looks and behavior. Should the customer be pleased with the maiden, he inquires the price of the cloth; she replies by naming what she would expect as a dowry, and the amount of this she raises or depresses, according as the candidate for her heart may please her, resorting to the demand of an exorbitant sum should she be averse to the purchaser. During this barter, the enamoured swain is able, in some degree, to judge her temper and character. If they come to an agreement, the parents of the girl are appealed to, and they have the right to assent or not, as they please. Should they assent, the parties adjourn to a public notary, the contract is made, and the purchased bride is carried to her new home. In this traffic widows are at a low price in general, and divorced ladies sell their cloths very cheap. The wife thus purchased cannot be re-sold, however much the purchaser may repent his bargain. She is his lawful wedded wife, and retains the purchase money, which is her jointure or dowry. It is evident that this curious system of barter is resorted to by these Mahomedan mountaineers as a means of evading the law of their prophet, which interdicts all courtship before marriage.—[Hays Western Barbary.

The British dockyards are swarming with screw propellers.

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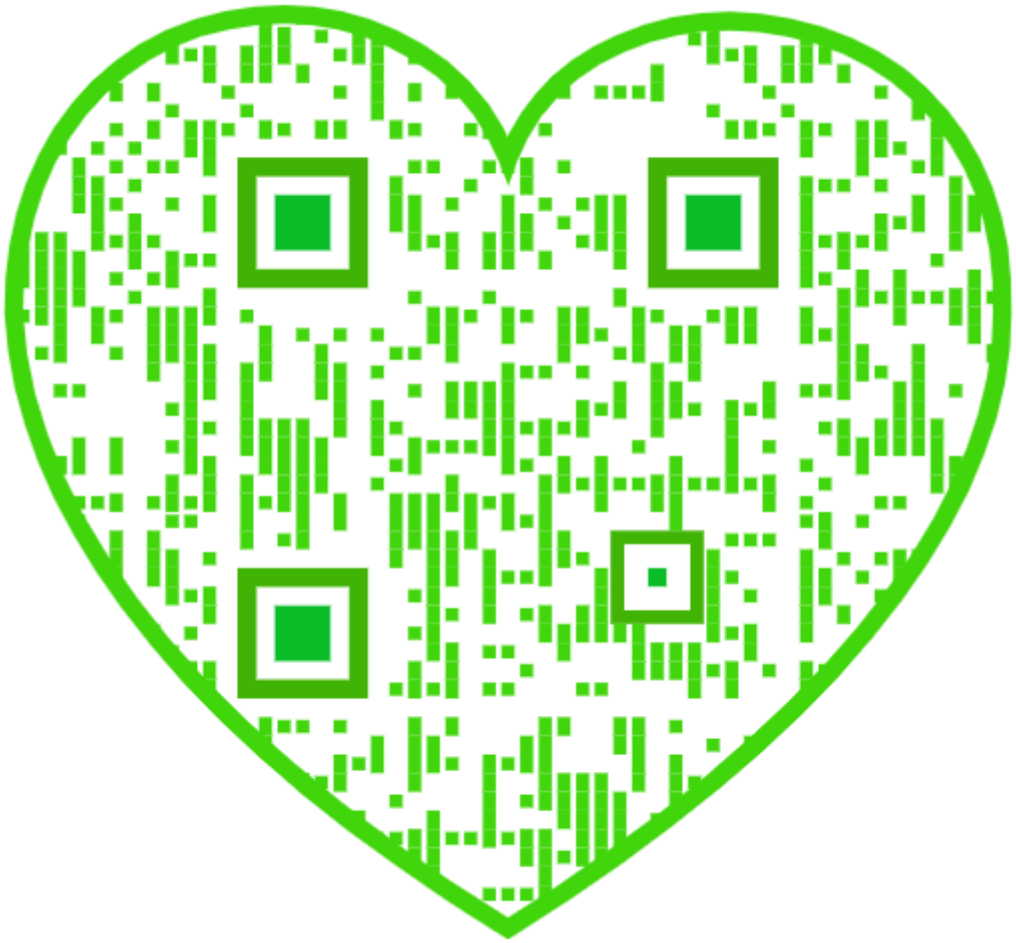

Miscellaneous.

Foreign Correspondence.

LONDON, 7th March, 1851.

The progress of the Crystal Palace, the arrival and arrangement of goods for the Exhibition, as public affairs, have been almost unthought of by the public during the last week, on account of the unsettled state of British politics. There was no Ministry for a little more than a week. All things, however, seemed to move along as usual; the wheels of the government did not cease to move, although no Ministry were in power. The old Ministry, with Lord John Russell, has been recalled by the advice of the veteran Duke of Wellington, a man who wields more power than any other in England. It is currently reported that Prince Albert exerted an influence to maintain the present Ministry, fearing that a change would have a bad effect upon the Great Exhibition. His views, in this respect, exhibit both wisdom and sagacity.

This week the Duke of Brunswick and Mr. Greene, the celebrated aeronaut, departed from Vauxhall Garden in a balloon, to go to Germany, the home of the Duke. Everything for comfort, such as cooking apparatus, carrier-pigeons, &c., were packed away in the balloon; but, after being up for two hours, it descended, as the wind was found to be unfavorable for the voyage.

The Crystal Palace is divided into various divisions for the different nations of the globe, and these are arranged in numerical order. No. 19 is for the United States, and has a frontage on the north side of the central aisle of 136 feet in depth, to the refreshment court (no cocktails, however, are to be allowed), near the north-east angle of the building, of 136 feet, and running on the north side of the entrance to the end. It has also a frontage of 120 feet on the south side of the central aisle, running back to the front and east end of the building, and it has an area on the ground floor of 51,264 feet. The United States has the largest amount of gallery space of any of the foreign countries, which, with the ground floor, makes a total of 70,868 feet. There are 19 numbers for the different foreign countries, occupying a space of 8,185 acres. France has a greater total area of space than the United States, but our country stands next. Arabia, Persia, China, Turkey, Greece, Egypt, Brazil, and Mexico, have their allocations in this Great Palace.

I believe that this great exhibition is a sign of great improvement in the universal man and will be a cause of continued improvement. It will probably be one of the most remarkable phenomena of the present year and of the half century that has just elapsed. The progress already made is the justification of future hope. When we refer to a few only of the extraordinary improvements of the half century just elapsed, such as the philanthropic and just conviction that the welfare of the multitude, not one or two classes, is the proper object of social solicitude: the amelioration of all penal systems, and the doubts that have been generated of their utility; the advances in religious toleration, and forbearing one with another; and such as the application of steam to locomotives on water and land, and the consequent vast extension of communication all over the world—so far as physics are concerned; such as the invention and general introduction of gas; the use of railroads and electric telegraphs; the extended application of machinery to all arts of life, almost putting an end to very severe injurious bodily toil. When we refer to a few events of this kind, we become convinced that the half century just elapsed is more full of wonders than any other on record. Of that wonderful half century the Great Exhibition is both a fitting close and a fitting commencement of the new half century, which will, we doubt not, surpass its predecessor as that surpassed all that went before it. Those who have lived through this wonderful era will lose all regret at not being able to witness the yet more wonderful things that are in store for their predecessors, in the bright hope that they will be the produce and the reward of the ingenuity and virtues they have been permitted to behold. EXCELSIOR.

American Locust, Cicada Septemdecim.

The following is an addition to the article in our last number, about this remarkable insect. It will make a very complete account of its habits &c., and will form a standard Entymological article.

The habits of the locust are as follows: by shaving off an inch of the soil, from the 1st to the 10th of April, or any time before the 20th of May, in any place where trees, &c., grew in 1834, you will open the chambers of the locusts. They look like half inch auger holes. Dig down, and you will find one locust in the hole. This hole or chamber is a place wherein he prepares himself for his final appearance in the perfect state. During night, and in cold or wet whether, he is at the bottom of the hole, 8 to 12 inches deep; in the middle of the day he is at the top, and evidently preparing to slough the shell or skin. The walls and top of the chamber are made water proof by a peculiar viscid humor.

About the 20th of May, a day or two earlier or later, according to the weather, they will begin to leave the ground. You will see their old shell adhering to the barkof a tree or shrub. But few will be found the first day, more the second, and so on, increasing in numbers till the 27th of May, when the greatest numbers will appear, and then in less numbers thereafter till about the 5th of June, when no more will leave the earth.

When they come up from the earth—always about daylight or a little before—they climb the first object they meet with, a tree, or bush, or stake, anything, two or three feet. They then lay hold of the bark, fixing themselves firmly by their claws, and commence working themselves out of their old shell, which is done by rupturing it on the back, between the shoulders, and drawing themselves out. As soon as they get fairly out, they seize hold of the old shell with their claws, raise themselves, and begin to expand their wings. Their bodies and wings at this time are exceedingly delicate, white and moist; but a few minutes exposure to the air dries and hardens them, so that by the time the sun is fairly risen they are perfect, and can fly. The wings before sloughing are beautifully folded up, and it is a beautiful sight to see them unfolded, and in a few minutes change from the most soft to the firm and rigid wing of a perfect insect. If it be a wet or very cloudy day, they are very apt to perish in the act of sloughing and drying.

Though they can fly, their flight is very short; from tree to tree, some fifty or a hundred yards is about as far as they usually attempt to fly. Very high winds frequently drive them to a considerable distance, even over rivers. Rivers and mountains are generally the boundaries of their districts.

As before stated, there are now several places where the insects of neighboring districts have commingled, causing their appearance every eight and nine years alternately, &c. Who knows that but other insects require also a number of years for their existence, though they now appear to be annual? The progeny of one that appeared several years ago coming up this year; and those of another that appeared a year after coming up next year and so on.

The depositing of the eggs of the insect is a very interesting sight. You will see one attached to a limb or twig, and it will not fly away as you approach. Look closely and you will see it excavating a hole in the limb with its curious ovipositor. Watch it closely, and as soon as it has inserted the ovipositor completely into the limb, take hold of the insect and gently but quickly draw it forwards, and apply the point of the ovipositor to the palm of the other hand, when you will see two eggs ejected into your hand in quick succession. They deposit two eggs at each insertion of the ovipositor, and generally five to ten pairs in each place on the limb. She then goes to other places on the same limb, or to some other limb, and repeats the operation, till she has laid about 400 eggs. The eggs are white, or pearl color, about the 12th of an inch long, and about one 6th as thick as they are long. It is this operation that destroys the small limbs, the excavations cutting off the sap vessels. The time of depositing the eggs continues till about the 20th of June, when they cease. All kinds of trees and shrubs are selected by them for their deposits, except pines or other turpentine trees. They do not seem to select the hardest nor the most soft wood, but that which is about the size of their bodies or less, seems to be chosen; the operation requiring them to grasp the sides of the limb with their claws, which they could not do so well if the limbs were large. By grasping firmly with their claws, they are able to make great pressure upon the point of the ovipositor and thus effect their object.

About the 25th of July the eggs of the locust are ready to hatch. Then take a limb containing them, cut carefully till you expose the the eggs, and take them out, place them in the palm of the hand, and they will hatch in a few moments. The little insect frees himself from the egg shell precisely in the same way that the large one did in spring, by rupturing the shell on his back. As soon as he is fairly out of the shell he starts off briskly in search of food. Let him get to the ground and you will see him work his way into it; follow him and you will see him attach himself to the tender roots of grass or other vegetables, and commence taking up the liquid exudation from the surface with his little rostrum or snout. These observations can only be made with a good magnifying glass. By the aid of the glass you will see the young insect has every feature and member precisely the same as the large one had when he came from the ground in the spring. By carefully watching you will see the young insect coming out of the excavations of the limbs, and falling to the ground. You can sometimes see great numbers falling from high trees. They are like little moats in the air, and require sharp eyes to see them. They are so small, and their apparent specific gravity so inferior that they are not injured by the fall.

The ovipositor is a most curious instrument. It is about three eighths of an inch long, of the size of a small pin, flattened at the point, and the whole forming a moderate curve. It is composed of a material much resembling tortoise shell, of a dark redish bro color. It is composed of three pieces, a centre piece which is the tube or duct, and two side pieces. The centre piece or tube has a very sharp chissel-formed point, with two sharp projecting points, one above the other below the orifice, resembling a fish's mouth. The two side pieces are supplied with saw teeth on their edges, and their flat faces are rasps. They are attached to the centre piece by tongue and groove. In use the centre piece is fixed firmly to the bark, and the two side pieces commence working up and down, first one and then the other, alternately, and thus the excavation is made. All this however can only be seen with the aid of a powerful magnifying glass, On looking at the instrument with the naked eye no such mechanism would be suspected.

The musical organs are also very curious, and difficult to describe. Directly under the shoulder of the wing on each side of the chest there is a beautiful membrane, somewhat triangular, convex, and ribbed with fine boney ridges. This membrane resembles a small shell, and is stretched over a cavity in the chest, the lower angle connected internally with a strong muscle. On the breast there are two large scales, one on each side, firmly attached to the breast above, but free below. On bending the body backwards these scales are elevated and expose two large cavities, also covered with extremely fine and silk like membranes. These cavities are connected with those under the musical membranes under the wing shoulders, and probably serve for lungs. When these cavities are filled with air, the musical organs or membranes first described, are made to produce the sound by the large muscles; the boney ridges of the membranes being made to act upon each other with such rapidity that the motion is scarcely perceptible. GIDEON SMITH, M. D.

Slate.

This is an extensively-distributed mineral, forming, like sandstone and the other rocks, whole ranges of mountains. We shall here speak of but one species of this rock.

Roofing-slate or clay-slate, is one of the most valuable of this series; a fine quality of it is found in Eastern Pennsylvania. This slate is not discovered in secondary rocks, and is vainly sought in the bituminous coal region. The color of roofing-slate is bluish-grey, inclined to black, brown, or grey, and exhibiting on its surface a red film of oxide of iron. A good slate of this kind splits straightly, into thin laminæ, and does not absorb water: this is tested by weighing it both before and after its submersion in water. It should be sound, compact, and uniform, showing no fractures or hard veins.

Soapstone.

French-chalk is a greyish white, but often greenish mineral, and is extensively distributed on the eartern side of the Allegheny mountains. It is abundantly found in Maryland, of an exceedingly good quality, where it is manufactured into various articles used in the arts. It is an excellent fire-proof material, and is used with admirable success, for dusting the faces of moulds in iron foundries, imparting a smooth and sharp face to iron castings.

Sulphur.

There are no minerals, containing pure sulphur, found in the United States; at least not in sufficient quantity to be of practical use. The chief sources from which sulphur can be obtained, are the sulphurets of the metals, which we possess in great abundance. Sulphur may be extracted from iron pyrites, by simple distillation in iron or stone, when they yield one half the sulphur they can contain; the remainder, sulphuret of iron, is easily converted into copperas.

Tripoli.

Rotten-stone is a soft, friable mineral, of an earthy fracture, in color yellow-grey or dirty-white, and does not adhere to the tongue like clay. It is composed entirely of silica, and is an aggregation of the skeletons of small animals.

Receipt for Burns.

As I see many receipts for various cures in your paper, I send you one for burns:—

Take lime water as strong as it can be made and add to it as much alum as it will dissolve, after which add one ounce of sweet oil, wh h will turn it to a jelly, like opodeldoc, if the lime is strong enough. This should be kept by every family in a tight bottle in some place where it cannot freeze, and should be immediately applied. A child of mine got her clothes on fire in the absence of the family, and when discovered the skin was almost all burnt off her face and neck; we had to make the preparation, butin fifteen minutes after it was applied, the fire was extracted and the child at ease. I have tried most of the receipts published in your paper, but nothing have I found to equal the above. If rightly made and properly applied it will extract all the burning heat in ten minutes. HIRAM ROOT.

[We have been acquainted with the use of lime water and olive oil salve, for burns, for more than twenty years, but we never saw it made up with a mixture of alum. It is a very good salve. Poultices of linseed meal, are the best remedies that we ever saw applied to burns.

Abbott Lawrence, our Minister in England, has offered a remonstrance on the taxing of vessels to defray the expense of lighthouses. The American Mail steamers entering England pay £62 each, about $300, a high tax truly.

During the year 1850, four hundred and seventy-seven miles of railroad were opened in England, one hundred and four in Scotlond, and forty-four in Ireland.

The Mexican Senate has prohibited the United States citizens from surveying the Isthmus of Tehuantepec.

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A Lot of Inventions.

SPRINGFIELD, Pa., March 11, 1851.

MESSRS. EDITORS—I think I am the inventor of the following articles; I will be brief in describing them, for fear of wearying your patience:

First, a self-revolving bullet,—this has thin narrow pieces of lead standing out on it in a spiral form, so that the action of the air causes it to revolve; this is to be shot in a smooth bore, and will obviate the necessity of cutting rifles; this will shoot more accurately and stronger, and requires less powder than the old kind.

Second, a machine for picking up apples,—this consists of two round thin pieces of board the size of a corn basket, the upper piece to be full of wire teeth, and holes in the lower, so it will fit up to the upper; it has a handle so as to strike it on the apples; thus, place it over the basket, then give a jerk on the lever, which will force the lower section down and detach the apples at once. Where the apples lie thick this will pick up a peck at once.

Third, a machine for greasing gudgeons,—this consists of a cup to hold the oil, with a valve in the bottom, and a number of different sized little wheels, and can be regulated so as to use a drop of oil as often as required—it is to be attached to the shaft or any otner part of the machine that is to be oiled, with a belt, and will operate the same to run either way; the oil will stop dropping when the machine stops, and start with it.

Fourth, a sawmill gate,—this is to be made of cast-iron, and the gate hole lined with the same, nicely fitted to a water joint: this is for the saving of labor, flumes, and water, as it is well known that any wood gate, after being used a short time, will leak half enough to turn the mill.

Fifth, rotary cannons, similar in form to a wagon wheel, with the felloe off, with the barrels in place of the spokes. I think the contents of what cannons of this kind a man of war could carry, would be sufficient to reduce any ship to a wreck, without any re-loading—they would give a broadside every few seconds without any cessation; when one barrel is shot, one jerk on a lever will bring the muzzle of the next before the port hole. This gun rotates on a pivot in the centre, and can be brought to bear on any point; they may be cast solid or otherwise. If it be necessary to re-load, let the men that load stand on the opposite side from the enemy, and they can load the empty barrels as they come around. This gun would be equally as destructive on the battery as in the field, if used on a carriage. Let the wheels be small and the gun raised so as to clear them.

Sixth, a bee-hive in four horizontal sections, six inches wide, each, with thin strips betwixt, and each piece alike, and so arranged that, by taking off a top section containing honey, and putting a new section under the bottom, the bees will work down, and the same bees may be kept for ages without swarming; or let it be, without changing the sections, and they will swarm as in the common hive.

Seventh, a section chair,—this chair is to be made wholly of steel wire one-fourth of an inch in diameter; the legs and pillars of these chairs are to be silver-plated or covered with velvet, and may be made in any approved style.

Eighth, a flying apparatus, having wings made fast to the arms, the whole length, then along the sides, running to a point at the foot, with the feet extended, then have the entire space between the legs filled in like manner, to serve as a tail; these wings are to be made in two sections of indiarubber and filled with gas—in the manner of a flying-squirrel—or they may be made of silk without gas, and have a sack on the belly, of the shape of an egg cut in two lengthways, with the big end on the breast to give the bird shape—then a sack to run the length of the back; these sacks are to be of sufficient size to raise him from the ground, and have a valve to let the gas out, if it is required. I think a man with this apparatus can fly to any desired point with a little practice. * *

[This correspondent is not, by any means, so unreasonable as the one we published a few weeks ago. We will, therefore answer him in detail.

1st. If the bullet has not a rotary motion when it comes out of the gun, the action of the air cannot make it revolve without obstructing it.

2nd. One person, by hand, will pick more apples than he could by this machine, according to the general way apples are strewn on the ground.

3rd. The idea is a very good one, and machines upon the same principle are now in operation,

4th. Cast-iron sluices, both for dams and canal locks, are now employed in many places.

5th. This rotary cannon embraces the same principle as the revolving pistol. We prefer a cannon to load at the breech. Our correspondent, however, means a horizontal revolving cannon fixed on a vertical shaft, and this is assuredly new to us, with the exception that two cannons, like two arms fixed on a vertical spindle, have been used before. They might answer for fixed batteries.

6th. This plan of a bee-hive is common.

7th. This chair is a good idea and is worthy of attention. Chairs made by this plan would certainly be light, durable, and neat. We have seen a cast-iron frame chair, however with wire-woven back and seat.

8th. We must inform our correspondent that the most early attempts at ballooning were by the aeronauts adopting the devices of birds. An apparatus to float a man would require to be of 1280 cubic feetsize, for a cubic foot of gas can only float about half an ounce. The plan would be impracticable.

(For the Scientific American.)

Incrustations in Steam Boilers.

An article in a late number of the Scientific American, on "Incrustations of Boilers," has induced me to trouble you with the following facts—though not *strictly* applicable to the subject alluded to.

Some few years since I was engineer on board of a boat—high pressure,—on one of our southern streams, and had not the least trouble whatever in keeping the boilers free of *scale*. Well, I was on another boat, on the same route, and could never keep the boilers entirely free of scale, and that, too, in spite of the use of potatoes, bran, tallow, &c. &c. Such a difference led me to try and discover the reason, and I finally came to the conclusion that it must have consisted in the heaters of the two boats, and for the following reasons:—the first boat's heaters were what we termed *wet* heaters, that is, heaters that allowed the escaping steam an immediate contact with the water that had got thus far on its way to the boilers, and consequently a greater part of the tallow used in the cylinders thus found its way into the boilers, being carried thither by the constant supply of water passing into them; whilst the other boat's heaters were called *dry* heaters—that is, the water-pipe, after passing into the heater, made several convolutions before its exit, consequently the water travelled many feet after entering the heaters before it left them, and thus the tallow could not get into the boilers, except as it was put into them after cleaning them out, and by keeping on the top of the water, soon found its escape by the gauge-cocks. In further proof of the forgone conclusions, I may state that I now have charge of the engine of a steam saw-mill, owned by one of your subscribers, and I have been told that, prior to my taking charge, they were very much troubled with scale, though they cleaned the boilers once a month, (which is not a great while, where we use well or spring water). I found the grease cock so much out of order that it could not be used, I repaired it, and after running the engine near two months, found no scale at all; it is needless to say that the heater is a wet heater.

Believing there is not enough attention paid to the construction of heaters, I send you these facts, but am sorry that I could not do it in a more condensed form; my style is partly in keeping with the subject—*non-condensing*.

Very respectfully, JOHN E. MILLER.

Warrior Stand, Ala., March 5, 1851.

The navy of Sweden consists of 1,205 sailing vessels and 49 steamers.

Great Discovery in Illuminating and Motive Power.

Mr. Editor, I send the following extract cut out of a paper, I wish to get some information about it. Can you give me any? Is this Paine's Light. How could I or any other person produce such a light.

"The railway Times has the following:—The decomposition of water has at length been obtained, and that at a merely nominal cost, and with unerring precision. This great discovery, originating in America, has been perfected by an eminent German chemist, and patented in the three kingdoms by Mr. Shepard. The carburretted hydrogen may be formed to any extent, which while, possessing an illuminating power equal to that of coal gas, is capable of being itself applied to the same purposes as steam at a remarkably high pressure. The gas is also capable of producing an amount of caloric equal to that of live coal, and consequently well and cheaply fitted to act as a combustible agent in the conversion of water into steam. This tremendous power has been for some time engaging the attention of our most eminent engineers, and will, when sufficiently tested, be experimented before the public. If successful, as there is every present appearance of its being, the revolution it must effect in the economic working of railways, and indeed in every branch of trade and manufacture where steam is employed as a motive power, is altogether incalculable. It almost opens to the wondering gaze the Utopian vista, in which unskilled manual labor shall be no longer necessary. It is sufficient for us, however, to state that several of the leading railway companies are in treaty with the patentee; and that consequently, if anything whatever is capable of being made out of the discovery, the railway interest will possess at once the first benefit and chief honor in its realization."

[We are totally unable to answer our correspondent. The extract is Greek to us, of the very highest kind. It is a gaseous extract full of ignorance respecting chemical science, and has no truth in it; carburretted hydrogen cannot be made from water which is composed of oxygen and hydrogen. We know of no other person who has been able to demonstrate water to be a simple substance, except Mr. Paine, nor have we heard of a single individual who has been able to make his machine and resolve water by one magnetic pole and a broken circuit entirely into hydrogen. This is the more singular, as Dr. Colton appeared to know all about it, and drawings were published in so many papers. The Editor of the Boston Commonwealth stated that he intended to make a machine and produce the light. We have never heard any more about it. Has any man but Mr. Paine, in our country, been able, or is any one able, to resolve water *entirely* into *hydrogen*, or oxygen? If so, let him speak out. We do not like boasting and betting—we like "speaking in deeds." After all that has been said about the mode of producing this light, and the resolving of the whole water into a single gas, for all the dark *light* of Dr. Colton's apparatus, we know no more now than we did two years ago about the practical mode of arriving at the results. We cannot therefore throw any good light upon the subject to benefit our correspondent.

A letter from Mr. Paine, as an answer to Mr. Mathiot, will be found upon another page.

Letters of Various European Countries.

The number of letters transmitted by the mails in various countries, can be seen from the following table.

	Population.	Letters.	Per head.
England	29,000,000	320,000,000	11.0
Switzerland	2,408,000	13,600,000	5.6
France	36,000,000	108,000,000	3.0
Prussia	16,500,000	45,000,000	2.7
Austria	37,000,000	23,000,000	0.6

The enlightened kingdom of Austria comes most decidedly out at the little end of the horn—about half a letter to every inhabitant.

If the civilization of a country can be well tested by its public roads, the intelligence of a people can well be tested by the number of letters transmitted through the post office. By the above statistics, Britain stands high above all other European nations.

For the Scientific American.

Fulton in France.

I did not know Mr. Fulton in Paris; I was living remote from that city, near Brest, where he came, I believe, in 1796 or 1797, with orders from the Naval Department to have all necessary facilities granted to him for experimenting on his Torpedo and Submarine Boat. Knowing my connection with the family of General Moreau, who had a brother in the navy, and finding little encouragement from the high naval officers in that arsenal, he requested me to speak to Captain Moreau on the business of his mission, which I did; but found this officer like his comrades, quite opposed to Mr. Fulton's innovations in maritime warfare. "If Mr. Fulton," said he, "should realize his *humane* project, as he calls it, there would be an end to our profession; he must not, therefore, expect encouragement here." The Diving Boat which Mr. Fulton brought with him was much admired for the science of the conception and the great skill in the execution. It seems that Mr. Fulton had studied the pneumatic machinery by which the fish rise to the surface or lie at the bottom of the sea, and had imi ted this natural power for his boat by some mechanical contrivance—most probably through a contraction and expansion of the volume of the boat. He had, if I remember, a tube to admit fresh air, and another to expel foul air; his mode of propelling the boat was by a spiral *sculler* in the stern, turned by a crank, and it made about two miles an hour. This was the first I had heard of propellers on the Archemidean plan.

I remember to have asked Mr. Fulton, if vessels might not be constructed on the same plan, including the submarine progress. He said they could, but not for commercial purposes. At the time of the projected invasion of England, this mode of crossing the British channel, with a small force for a lodgment only, was suggested. Perhaps we may see, one of these days, a copper vessel carrying dispatches from Dover to Calais, in stormy weather, under water; by the means of steam engines on both sides, a very rapid motion might be attained, and the machine be quite out of reach of passing vessels. [A Yankee notion, this, for the London Fair.]

I had heard of Mr. Fulton's being in Paris as inventor and proprietor of a Panorama, which he was said to have sold to try his experiments on the propulsion of vessels by steam and machinery. I think it must have been some time between 1796 and 1798.

I may be able to lay my hand on some memoranda, to fix dates and to refresh my old mind on past events, relating to Fulton.

W. F.

A Burning Rock in New South Wales.

In the course of the day, we passed, at the distance of three or four miles, the burning mountain Wingan; and, as the weather was clear, we could see it smoking very plainly. I did not visit it, but heard it described by several persons who had been on the spot, from whom I learned that there is little to be seen, and it is far from being of a volcanic nature, as has been represented. It is, in fact, nothing but a certain substance, probably a seam of coal or bituminous matter, burning with a slow fire, and similar to what has been observed in other countries, and even in England. On approaching this place of fire, a crack is discovered in the side of the range, long, and from one to three feet in width, from which a considerable degree of heat is emitted. On looking down, the rock is seen at a few feet from the surface, to be red hot; and beautiful crystals of sulphur are found adhering to the edge of the gulf. The blacks as far as I could learn, have no tradition or superstition regarding it; and it is therefore impossible to tell how long the fire has been in action.—[Henderson's Excursions in New South Wales.

Iron Masted Vessels.

The London Times states that a Dutch East Indiaman is lying in Liverpool, which has an iron mast, constructed of iron plates, formed into cylinders and firmly riveted together. Inside at various intervals, cross-bars are interlocked, preserving the shape and the strength of the mast.

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New Inventions.

Improved Glue Pot for Cabinet Makers and Joiners.

Mr. Robert F. Beebe, of Harlem, N. Y., has invented a very useful improvement on Glue Pots and their arrangements. He has a cast metal fire chamber, into which fits the water dish, and into that the glue vessel. These are all cast in such a way that they lock by flanges and slots, and by simply taking hold of the handle of the glue pot, they can all be lifted and carried together, and by turning the vessels round by the handle they can all be locked or disconnected, as may be desired. The lower vessel or fire chamber is suited to have a spirit lamp inside of it, or it will answer to be set over a few ignited chips. This is a minor invention but it is a good one, because it is a useful improvement, as every tradesman will admit who sees it. Measures have been taken to secure a patent.

Improvements in Operating the Picker Staff of Looms.

Mr. G. J. Wardwell, of Hanover, Me. has invented and taken measures to secure a patent for an improvement in power looms, whereby he operates the picker staff, and gives it a motion from both sides by a single cam. He takes the power from the main driving shaft of the loom by a vibrating arm attached to a peculiar ratchet wheel outside, and this drives a short revolving shaft with a fan-edged cam on its inner end, the edge of which fits into a slit in the bottom of the picker staff (which vibrates on a centre), therefore, as this cam revolves, the edge of it acts upon the bottom of the picker staff, to make it operate the shuttle in both directions across the raceway of the lathe (sley). The picker staff and the fan cam are attached to the frame of the lathe and move with it. This improvement saves a shaft in the construction of the loom.

Improvement in Paper Pulp Strainers.

Mr. Geo. West, of Tyringham, Berkshire, Mass., has invented and taken measures to secure a patent for improvements in Paper Pulp Strainers, which is stated by those acquainted with the business, to be a valuable one. The improvement consists in a better separation of the motes and impurities by a strainer, which is operated by a bellows below it, to force the pulp through the strainer by creating a vacuum below the pulp strainer, when the pulp rushes through the screen, and is received into a box, and by the next stroke of the bellows the said pulp is not pushed back through the screen (as enough is left on it to keep out the air), but into a side chamber, and thus, by the vacuum process of the bellows, the pulp is strained in an excellent manner through the screen spoken of.

Petition for the Extension of Patents.

United States Patent Office, March 14, 1851. —On the petition of Bancroft Woodcock, formerly of Mount Pleasant, Penn., now of Wheeling, Va., praying for the extension of a patent granted to him on the 14th day of June, 1837, for an improvement in "Self sharpening Plow," for seven years from the expiration of said patent, which takes place on the 14th day of June 1851:

It is ordered that the said petition be heard at the Patent Office on the 9th day of June, 1851, at 12 o'clock M.; and all persons are notified to appear and show cause, if any they have, why said petition ought not to be granted.

Persons opposing the extension are required to file in the patent office their objections, specifically set forth in writing, at least twenty days before the day of hearing. All testimony filed by either party to be used at the said hearing must be taken and transmitted in accordance with the rules of the office, which will be furnished on application.

THOMAS EWBANK, Com. of Patents.

Premium for a Printing Press.

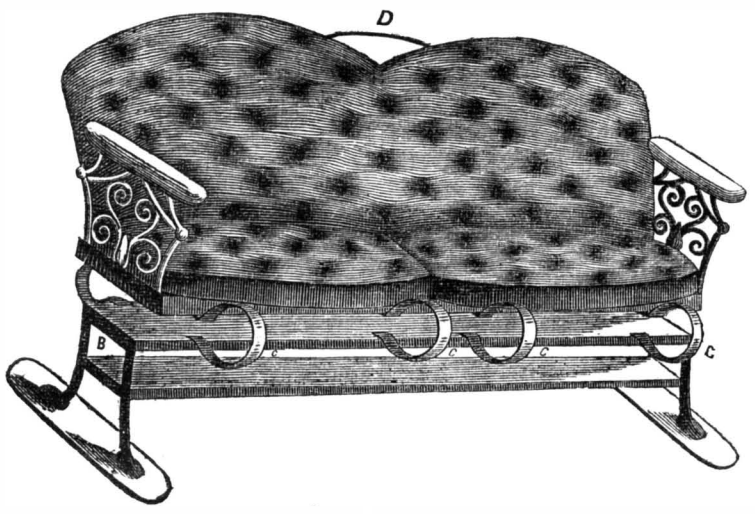
A premium of one thousand dollars for the best power printing press, of the cylinder kind and of a new construction, of sufficient size to print a form 42 by 26 inches, and to point the said form well, at the rate of at least 500 impressions in an hour, by the ordinary labor of a man, with a crank and a fly-wheel, and a person to feed the paper; said press to have adjustable bearers, self-inking rollers, pointing apparatus, sheet-flyer, fly-wheel, bands, roller moulds, roller stocks, and in short everything usual to make it complete; to be substantially, durably, and accurately constructed, with a level bed and well turned cylinder, that power may not be wasted in overcoming irregularities of workmanship; the whole to weigh not over 3,000 pounds, and to be manufactured and sold profitably at not over $500. Perhaps the bed and cylinder can be advantageously geared together, so that their faces may move with equal speed, and thus prevent a tendency to mackle or slur the impression.

Presses offered for competition to be ready on the first of October next, at some suitable place in this city, when a Committee, principally of printers, will examine them, and make the award in the course of the month.

GEORGE BRUCE.

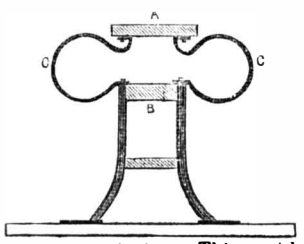
[Since we published a paragraph about this prize, a few weeks ago, we have received some communications on the subject. We have no connection with any business relating to it. The above conditions convey all the information we possess.—[ED.

WARREN'S RAILROAD CAR SEATS---Figure 1.



The accompanying engravings represent a Railroad Car Seat, embracing the application of the patent of Thomas E. Warren, of Troy, N. Y., to one of the most useful purposes, viz., the seats of our railroad cars. Figure 1 is a perspective, and figure 2 a transverse section, showing the springs. The same letters refer to like parts. The springs are made of the best plate steel, and are represented by C C, and are secured by nuts to the top and bottom braces, A B. In figure 1 the springs are represented a little larger than the size used, so as to show the way in which they are combined to the other parts of the seat. All the parts of this seat are made of the best of me-

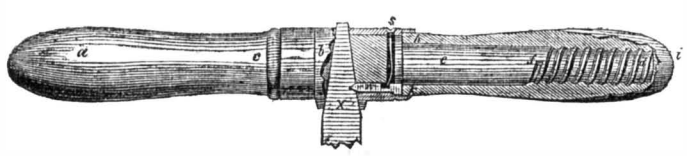
FIG. 2.



tal, except the cushioning. This seat has its back like those in common use, movable on swivel joints, so as to turn the back and make it answer for both sides. D is a metal band which strengthens the back, and at the same time answers the purpose of a handle. The appearance of this seat is very attractive, and the materials of which it is made are indestructible. It has now been introduced upon a number of railroads, and, as might have been anticipated, it gives great satisfaction—so much so, that we are assured, there is every probability of its becoming the universal seat for all cars. The springs, C C, by their gentle elastic action, make the seat exceedingly easy and pleasant to sit upon. This principle of action is more to be desired (because more necessary) on rail car seats than any others. Every person who sits in a railroad car (on the common seats), for even two hours, feels, to use a common but trite expression—"as if his bones were pounded in a bag." This is owing to the great number of slight concussions which are experienced, one of which is not felt, but a great number of them soon tell a different story. This great drawback to comfortable railway travelling is obviated by Warren's Steel-spring seats, and there can be no doubt but passengers will universally hail their introduction with delight.

For more information about the chairs made upon this principle, we would refer our readers to pages 76 and 77 of this Volume of the Scientific American. This invention is patented both in America and in all the important countries of Europe. These chairs are manufactured at Troy, N. Y. The factory is in River street, and there is a wealthy company, named "The American Chair Company," formed to carry out and apply this invention in the construction of all kinds of chairs and railroad car seats. For easy chairs we know of no others at all equal to them.

IMPROVED AUGER HANDLE.



This is an improvement in auger handles invented by Mr. Augustus Thayer, of Walden Bridge, Columbus Co., N. Y., and for which a patent was granted in the month of last December, 1850. The accompanying figure represents the handle with the upper part of the auger shank in its place—the left hand of the drawing, from *a* to *b*, showing the outside appearance (to which the right half also corresponds outside). The right half of the figure is a vertical section.

a c e d is of solid wood, the part *a* to *e* being turned of the form of common auger handles; the part from *c* to *e* of a cylindrical form; the part from *e* to *f* being cut down to show a small shoulder at *e*, and thence of a slight taper; the part from *f* to *d* is cut into a screw of three or four threads. The part from *c* to *e* is secured by a metal band as shown in the left hand of the drawing. This band and the wood are pierced to receive the shank, X, which passes up through it. A small groove is cut into the lower part of the wood next the band to receive a steel catch, *n*. It is long enough to extend from the shoulder, at *e*, into the shank, X, which it penetrates in the form of a wedge-shaped point—a notch is made in said shank to receive it. This notch is of a more acute angle form than the point of the catch, *n*, to make the said wedge-catch press the shank, X, upwards, as well as to secure it firmly. When this catch is not pressed into the notch of the shank, it is kept back from entering it by a small spring, *s*, which lies in a small mortise cut through the handle, its upper end being formed into a head, screwing into the metal band and its lower end, and entering a notch in the catch, *n*; *h i k*, show the remaining wood part of the handle, which is externally like the other half, but is bored accurately to receive the stem, *e f*, and screw, *f d*. The inner ends, *h k*, pass a short distance under the metal band.

When the outside part is screwed firmly upon the stem, *e d*, its butt, *k*, will press the detent or catch, *n*, into the auger shank notch, pressing the shank upwards by the inclined edges of the wedge-catch, and holding it firmly in its place when so pressed up. To release the auger it is only necessary to give half a turn or so to the outer handle, *h i k*, at the right, when the spring, *s*, will release the detent or wedge catch, *n*. The principal part of this handle is made of one piece from end to end, *a* to *d*, and is strengthened by an iron band where the shank socket pierces it, therefore it must be a strong handle. The operating parts are few and not liable to get out of repair. The handle, however, may be made out of any material most convenient, although wood, for its lightness, is to be preferred.

More information about rights, &c., relative to this excellent improvement, may be obtained by letter addressed to the inventor and patentee, at the above mentioned place.

Claussen's Improvements in the Preparation and Bleaching of Flax.

Our able London contemporaries, the "Patent Journal," and the "Mechanics' Magazine," publish the specification of a patent granted to Chevalier Claussen, whose operations in the making flax a substitute for cotton, have caused so much talk in England and in this country. The patent was enrolled on the 15th of last month. He steeps the flax straw in a solution of caustic alkali, of a mild heat, for two days. This is to remove the gummy and oily parts. If the fibres are required to be long, the straw is then steeped in a very weak solution of sulphuric acid and water for two hours, after which it is exposed to the fumes of sulphur in a close room. After this it may be bleached in the ordinary way. M. Claussen states that this process makes the flax more free to scutch, and certain matters are removed which cannot be removed by water alone. So far, we cannot perceive any new discovery in this as a preparation to bleaching. This steeping of cotton and linen in caustic alkali, preparatory to bleaching, has long been known and practiced, but M. Claussen says, "this process described obviates the *rotting* of the flax," and thus saves both time and prevents the noxious vapors arising from the process of rotting.

To make the flax suitable for carding and mixing with cotton, silk &c., it is first cut into proper lengths by machinery, then steeped in a solution of *saleratus*, and afterwards immersed in a solution of 1 part sulphuric acid and 200 of water. He says, "in this process, a portion of carbonic acid gas is developed in the tubes of the fibres, which splits the filaments, giving them the appearance of fine cotton wool." This is certainly a philosophic idea.

The Mechanics' Magazine contains a very full description of the old and new processes, and we will refer to them at more length next week.

American Enterprise Honored in England.

Professor Silliman stated in one of his recent lectures in this city, that Captain Wilkes, of the United States Exploring Expedition to the Antarctic Seas, has just received an elegant gold medal from the British Government, as an acknowledgment that he was the true discoverer of a disputed continent, from which he saw the volcanic fires bursting from a land of ice and snow, and pouring their lava down the eternal barriers of the frozen mountains.

The use of the telegraph has been allowed to the public in France—a great condescension truly in a *free* country.

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Scientific American

NEW YORK, MARCH 29, 1851.

Machinery and Labor.

We often hear the complaint made, "machinery is making the rich richer and the poor poorer—it is destroying the labor of the poor." We suppose that many will be ready to use the same remarks respecting the article on our first page, about Sewing Machines. We have heard the same remarks made frequently, and by men who otherwise held correct opinions upon almost every subject. The only reason why people hold such opinions is owing to the little attention they have given to the subject. We hold the opinion that every new and useful machine, invented and improved, confers a general benefit upon all classes,—the poor as well as the rich.

Severe bodily toil, day by day, as a work of necessity, is coveted by no man. "In the sweat of thy face shalt thou eat thy bread," was the woe pronounced for transgression, and ever since that moment severe toil, for a bare sustenance, has been desired by no man. Every sensible man endeavors to do his work with the least expense of toil; and foolish must that man be who does not look upon the saving of slavish toil in the light of a blessing. It is indeed true that the first effect of a new machine is to throw some muscular labor out of the market, but this is no more than adding to the number of laborers—but wicked must that man certainly be who wishes for war and famine to depopulate the world, in order that there might be more labor at the common trades for those who escape the bullet and the sword. The laboring man sees a machine doing the same work he might have done, and it may extort an imprecation from his lips, but in doing so he forgets that the machine is working for him as well as for its owner. If all machines were in a moment to be banished from the earth, in what condition would the human family be placed? In the condition of the Australian savage; and yet those men who would proscribe one machine cannot be consistent without proscribing all. This brings down the whole matter to its radical. Every person who reflects calmly upon the subject, will come to a right conclusion.

But we believe that machinery does not throw people out of employment and make them beggars (the most common argument against it). No, it only destroys the least mental of manual employments, and coerces man to seek more elevated and dignified pursuits. When rude trades are superseded by machinery, others, which are less laborious and more profitable, spring up, phœnix-like, from the very ashes of the annihilated trades. The fields of labor have become more extensive with every improvement in machinery. How many new callings have been created by railroads, telegraphs, &c., and all for the general good. The labor saved by machinery is saved to all men, and the mechanical skill of a nation is a very good test of its civilization.

Machinery is the friend of the poor. It has made those things common which were once the luxuries of the rich. The day is past when fine linen or purple was the badge of a Dives; or when Queen Elizabeth could consider a pair of stockings a royal gift. The poor type-setter, who once strained his eyes beside a dipped candle, now composes under the blaze of gas. The poor man's locomotion is cheapened, and thus he gains a month in every year.

Improvements in machinery enable the humblest operative to read his cheap newspaper and book—a blessing denied to him not many years ago. The use of coal alone, as connected with machinery, has given employment to hundreds of thousands. The luxury of manufactures engenders new wants, which cause new demands, and repay new labors. Can it be pretended that human power is driven out of the market? If one hand can be made to do the work of ten, the nine are left free to add to the same sort of work or to turn to something else, or to rest, or to read. Saving of labor is increase of leisure. Here is a chance for the working man, helped by machinery, to bestow on intellectual advancement, hours which he never could redeem before.

We hail every new invention as a man-elevator. Go on, inventors, in your noble work: every new and useful improvement made by you enlarges your sphere of usefulness, and benefits yourselves and others.

American Inventions and Benjamin Cheverton.

A correspondent of the London Mechanics' Magazine, named Benjamin Cheverton, has been indulging his wit with "American Discoveries,"—Mr. Paine's Light and Mr. Frost's Stame. His object is to ridicule Messrs. Paine's and Frost's discoveries, as American *random guesses*—"they will not stand the test," he says, "of the more severe and cautious method of European investigation." Europeans generally look upon all American scientific disquisitions, as superficial and untrustworthy. This is a very erroneous view of the American character, and one wherein Mr. Benjamin Cheverton has exhibited a want of information. We do not say he is or is not correct in his surmises (for he only surmises) about Mr. Paine's light, and Mr. Frost's *stame*, but we respectfully inform Mr. Cheverton that Mr. Frost is an experienced *English* Engineer.

We do not intend ourselves, nor have we room for others to engage in a controversy about the *light* and the *stame*. As Mr. Frost has corresponded with the London Mechanics' Magazine, he will, as he is perfectly able to do, answer for himself.

Mr. Cheverton has been reading Dr. Foster's letter, which appeared in the Sci. Am., wherein the possibility of *hydrogen* being a metal is suggested. He asserts that if hydrogen is a metal, and its metallic energies superinduced by passing through camphene, as carbon can be collected on a plate held over a flame of carbon vapor, so would the hydrygen metal be collected. We do not say that hydrogen is a metal, but we object to this antithesis. It will not stand the test of scientific experience. A diamond has been and can be consumed by a powerful lens or the voltaic current; can Mr. Benjamin Cheverton collect the residue into a diamond. We know he cannot; this may be owing to the *cautious manner* of European investigations for which he entertains such profound reverence. There are anomalies in chemical science, such as the isomeric compounds, but the reason why there are anomalies is not the fault of the science as understood, but owing to what is not understood. Chemical science is but a few years old, and when we recollect that it is one of experience altogether, it is more wise to use calm words and sound logic than the mere cant of criticism. Mr. Cheverton has not shed a single ray of light upon the subjects he attempts to discuss.

A Mr. Joseph W. Swan, in the same magazine, treats the Paine Light *almost* like a philosopher, for he too, exhibits the European self-conceit, by a fling at American pseudo Philosophers, a thing totally uncalled for. He has passed hydrogen through turpentine, and asserts that the increase of luminosity is due to the carbon absorbed by the gas passing through the turpentine. He says the hydrogen combines mechanically with the carbon of the turpentine, and this is the reason why so little turpentine is required to make the gas luminous. He says it requires a greater amount of carbon to produce the same effect when united chemically with the hydrogen. We beg leave to state that *this* is a mere assertion, but it may be true as he states that he collected the carbon on a plate above the flame of hydrogen after it passed through the turpentine, and for this fact, the only one, we humbly present him the sincere thanks of all the American pseudo-philosophers, and we hope at some future day to have the honor of presenting him some mark of admiration for his splendid addition to the cause of science.

Next week we shall commence a series of articles, from the pen of an able correspondent, upon *illuminating gas*. We have a number of architectural illustrations in the course of preparation.

Management of the Patent Office, and Mr. Burke.

The past winter has witnessed some exciting scenes in Washington, relative to the Bill which was before the Senate for altering the Patent Laws; relative to the efforts made to remove Mr. Ewbank, and relative to a singular revelation made by the ex-Commissioner of Patents—the Hon. Edmund Burke. This revelation will be found on page 182 of the Scientific American, in the article of Mr. Burke, defining his position on the Bill spoken of. A few words by you, Mr. Editor, commenting on one part of the said article, says, "this relates to the Woodworth Patent, we believe." Now what is said therein, which called forth such a remark? A most flagrant outrage by the Patent Office upon the rights of the whole body politic. Mr. Burke says, "when I was Commissoner, a patent was reissued, which, in my judgment, covers what the original patentee never invented nor claimed. It was done in my absence, and under circumstances which throw very dark suspicions over the propriety of the transaction, so far as the party, the Agent, and Examiner are concerned."

Without your remark, Mr. Editor, the public would have been somewhat in the dark about this. I have been informed that the party referred to, are the owners of the Woodworth Patent; the Agent, Mr. C. M. Keller; the Examiner, Mr. Fitzgerald. Now, as the Commissioner of Patents is responsible for the acts of his subordinates, why did not Mr. Burke remove the Examiner who transacted this dark affair? If it is all true, it throws no little suspicion upon Mr. Burke; and, if not true, it also throws some suspicion upon him. I am not acquainted with the facts of the case, but upon the points which I have noted the public require some statement from Mr. Burke, to clear up the *dark* suspicions. The Examiner referred to is still in the Patent Office. If subordinate officers are permitted to do wrong, and continued in positions to continue to perpetrate such wrongs, our government must be in a very bad condition respecting moral discipline. I do not know whether the charges mentioned are true or not, but this I know, if true, Mr. Burke has done wrong himself (for which I am not a little sorry, as I entertain for him a high respect), and Mr. Ewbank is now doing wrong; there is surely something decidedly wrong in the Patent Office. If Mr. Fitzgerald has done no wrong, he should clear himself, and perhaps he may be able to do this; but as the case now stands, the whole of the parties whose names I have mentioned, stand before the public in a very unenviable light. JUNIUS REDIVIVUS.

Artificial Tooth Manufacturing.

The Boston Christain Register, contains a long and very interesting description of a visit to Dr. Morton's Tooth Factory, at Needham, Mass., we select the following extract:—

"Pure crystalized quartz is calcined by a moderate heat. When taken from the fire it is thrown immediately into cold water, which breaks the rocks into numberless pieces. The larger pieces are then broken up into smaller ones, and the whole, when reduced to a proper size, put into a mill, which is itself made of quartz. The mill is turned by steam power. Here the pieces of calcined quartz are ground up into a powder very much after the fashion of grinding Indian corn into meal. Next a variety of spar, which is free from all impurities, is ground up in like manner into a fine powder. Artificial teeth are composed of two parts, called the body and enamel. The body of the tooth is made first: the enamel is added last.

The next step is to mix together nearly equal parts, by weight, of the powdered spar and quartz. This mixture is again ground to a greater fineness. Certain metallic oxides are now added to it for the purpose of producing an appropriate color, and water and clay to make it plastic and give it consistence. This mixture resembles soft paste. The paste when thus prepared, is transferred to the hands of females, of whom he saw no less than fifteen engaged in filling moulds with it, or otherwise working upon it. After the paste had been moulded into proper shape, two small platina rivets are inserted near the base of each tooth for the purpose of fastening it (by the dentist) to a plate in the mouth, They are now transferred to a furnace, where they are 'cured,' as it is techanically called; that is half baked or hardened. The teeth are now ready to receive the enamel, which is done by women; it consists of spar and quartz, which has been ground, pulverized and reduced to the shape of a soft paste or semi-liquid. In this state it is easily spread over the half baked body of the tooth, by means of a delicate brush. when this is accomplished, but one more step is required. The teeth must be subjected to an intense heat for the purpose of thoroughly baking them. They are put into ovens, lined with platina and heated by a furnace in which the necessary heat is obtained. The baking process is superintended by a workman, who occasionally removes a tooth to ascertain whether those within have been sufficiently baked. This is indicated by the appearance of the tooth. When they are done the teeth are placed in jars or boxes ready for use. An experiment which was made, tested to our satisfaction the hardness of these artificial teeth. One of them taken indiscriminately out from a jar full, was driven without breaking into a pine board until it was even with the surface of the wood. The Register expresses its satisfaction at the neat, orderly, and intelligent appearance of the females employed in the manufactory. The room in which they labor at their task has a cheerful look which is not often seen."

[In connexion with this subject, the important question arises in our mind, "what is the cause of the general early decay of the teeth of our people?" It is the common remark of foreigners after they come here "what bad teeth the Americans have." It is quite a common thing for young females, not over twenty years of age, to wear artificial teeth. Decayed teeth at an early age among all sexes is the rule among us; in England, it is the exception. We have remarked the good and sound quality of the teeth of the English, Scotch, and Irish who come over to this country. Is it the food, mode of living, or our climate, that is the cause of the early decay of our teeth, or is it a combination of these causes? We believe the climate is the principal cause, for we have heard English people say that their teeth very soon decayed, after a residence for some time among us. Trusty information, upon this subject, would be of great interest and importance to many of our readers.

Fever and Cancer Cured---Great Discoveries.

The city of New Orleans has become not a little celebrated for two important discoveries made in it within a few years, by two eminent physicians,—one is Dr. Gilbert, whose fame is now widely extended, as the successful curer of that hitherto impregnable and terrible disease, "cancer." The other is Dr. Seat, who has cured some of our most eminent men, in a few days, of fever. We have read in the New Orleans Delta, and have seen the most respectable testimonials of the cures effected by Dr. Gilbert, in his Hospital, Poydras street, New Orleans.

Dr. Seat visited our office last week, on his way to Europe to dispose of his important discovery to foreign governments. The discovery is a medicine which never fails to cure the most inveterate case of fever in a few days. Such discoveries confer untold blessings upon the human family.

Steamboat Betting.

Mr. Darius Davison has replied to Mr. Vanderbilt, about his offer of a bet upon the steamship Prometheus, and offers to bet $100,000 that he will build a steamship not upon the plan or model of the Prometheus, within 18 months, that will run at a greater speed and effect a greater saving in fuel.

Appendix to the Washington Astronomical Observations of 1846.

A large pamphlet, bearing the above title, by Lieut. Maury, has just been published. It is a most interesting document. Next week, we will endeavor to present its leading features to our readers.

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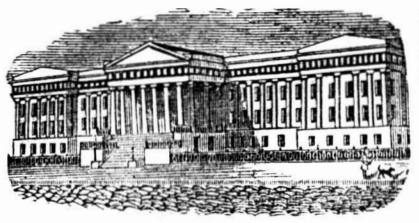

☞Reported expressly for the Scientific American, from the Patent Office Records. Patentees will find it for their interest to have their inventions illustrated in the Scientific American, as it has by far a larger circulation than any other journal of its class in America, and is the only source to which the public are accustomed to refer for the latest improvements. No charge is made except for the execution of the engravings, which belong to the patentee after publication.

LIST OF PATENT CLAIMS
Issued from the United States Patent Office.

FOR THE WEEK ENDING MARCH 18, 1851.

To E. A. Andrews, of New Britain, Conn., for improvement in Trunk Handles.

I claim casting the article in two parts, in such a form that they may be put together, without any alteration of the parts, and so that they cannot get out of place when the handle is attached to a trunk or other article, when the whole is constructed substantially as described.

To E. B. Bigelow, of Clinton, Mass., for improvement in delivering parti-colored warps in weaving.

I claim the method, substantially as herein specified, of producing figures that will match on tapestry carpets, or other fabrics woven with printed warps, by the employment of a clamp or clamps, to be clamped on to the warps, as specified, in combination with belts or their equivalents, having a positive delivery motion, and to which the said clamp or clamps can be attached at given distances, as specified.

To E. B. Bigelow, of Clinton, Mass., for improvement in Jacquard Looms for weaving out pile fabrics.

I claim combining with the power loom for weaving cut-pile fabrics double, substantially as described, a jacquard machine, for producing the figures on such fabrics, as described.

I also claim, in the weaving of cut-pile fabrics double with the figures produced by the jacquard dividing the figuring warps, so that one half (or nearly so) of the figuring warps shall be in connection with each of the cloths or fabrics, substantially in the manner and for the purpose specified.

I also claim for the weaving of cut-pile fabrics double, as described, the double and reversed arrangement of the jacquard, substantially, as described.

I also claim in the weaving of fabrics of the kind herein described, passing the double fabric between two vibrating bars, having curved faces to determine the length of pile between the two cloths, in combination with the two rollers, or their equivalents, over and under which the fabrics pass, after they have been separated, substantially as described, and this I also claim, in combination with a vibrating knife or knives, for cutting the pile, to separate the two fabrics, as described.

To E. S Clapp, of Montague, Mass., for improvement in fastening of Scythes to the Snath.

I claim setting the edge of the blade up or down, or more or less obliquely, by means of the adjusting screw in combination with the edge of the aperture, which forms the bearings of the two sides of the shank of the blade, substantially as set forth.

To J. M. Gardner, of Troy, N. Y., for improvements in the method of casting the backs upon the teeth of curry combs.

I claim the employment of a bar, in combination with the cope of a two part flask for casting the back on to the plates of curry combs, the said bar being notched to receive and hold the said plates, during the process, all substantially as described.

To S. H. Gilman, of Cincinnati, O., for Adjustable Cut-Off.

I claim, 1st, the tappet vibrated by the impact of projections upon the slide valve rod, and lifting thereby, a poppet valve, which admits steam to the slide valve chamber, during periods varying with the height to which the tappet is placed, by the elevation or depression of the sliding rod, or other object to which it is pivoted, said rod being raised or depressed by a motion derived from the governor, or communicated to it in such other manner as may be deemed expedient.

2ndly, I claim the mechanism, substantially as described, for prolongation of the admission of steam beyond the period at which it would be cut off by the tappet, to wit, the sliding plate and the intervening bar, the former with a pair of receding inclined planes, or edges, and the latter with an equal and parallel pair of salient planes, which, by sliding upon the former, hold up the poppet valves, after the tappet has ceased to act for a period likewise depending upon the movement of the rod, which latter may be actuated as set forth in the former claim.

To E. M. Hastings & John Shepherdson, of Jamestown, N. Y., for improvement in Cylinders for Figuring Looms.

We claim the mode of connecting the movable cams and slide pieces, with the drum, substantially as set forth and for the purpose stated.

To E. G. Lamson, of Shelburne, Mass., for improvement in Scythe Fastenings.

I claim the method, substantially as herein specified, of securing or fastening the scythe to the snath, by means of the clamp jaws acting on the bevelled or curved edges of the wedge formed shank, in combination with the method of holding down the end of the shank, by means of the till thereon, which works on to the toothed plate of the recess, as described, whereby the scythe is held more firmly to the snath, to resist all strain, than by any other method heretofore practised.

And I also claim the method, substantially as described, of spotting the scythe, that is, regulating the line that it shall have relatively to the curves of the snath, by means of the movable or adjusting plate, the edge of which forms the bed for the shank of the scythe, when drawn down to the clamps, as described.

To John Scott & John Tannahill, of Philadelphia, Pa., for improvements in Jacquard Machines.

We claim, first, the manner of operating the cylinder by means of the double lockers, in combination with the springs, whereby its complete operation is effected by the upward motion of the trap board, substantially as and for the purpose described.

Second, the application of weights to the tail cords above the harness, for the purpose of more effectually keeping them tight or straight, and thereby ensuring the more correct operation of the trap boards and needles upon them, substantially in the manner herein set forth.

To A. J. Surles. of Florence, Ga., for improvement in the construction of Bee Hives.

I claim having the comb placed within the trap, fortified or protected from the moth, or other insects, by the diaphram, substantially in the manner herein fully explained.

To T. R. Timby, of Meridian, N. Y., for removable handles to sad irons.

I claim the method herein described of constructing sad, tailors', and other hand-smoothing irons, with handles, which can be readily and securely attached to the iron, and easily detached therefrom, substantially as herein specified.

To Simon Willard, of Cincinnati, O., for improvement in the construction of metallic buildings.

I claim carrying up the vertical U-shaped flange binders between the flanges of the roof plates, to which they are attached, thus supporting the roof and binding it firmly to the building.

I also claim such binders attached in such a manner, in connection with the tie plates or rods, attached at the same spot between the flanges, and by the same bolts; and this I claim, whether the suspension bars be employed or not.

Electro-Magnetic Experiments.

MESSRS. EDITORS—Your correspondent, "S. S.," speaks of my experiments in Electro-Magnetism, under an appropriation from Congress, as "ending in no solid benefit to science." It would have been better for him to have waited till those experiments were ended before giving his judgment. From the cordial manifestations received from men of science for what I have *thus far* done, I feel quite well satisfied with the experiments, and I have only to add that they are still in prosecution, and that when the results are known, your correspondent will have something to serve as a basis for his judgment. I am respectfully, yours, &c., CHAS. G. PAGE.

Washington, D. C., March 13, 1851.

For the Scientific American.

Letter from Mr. Paine.

If, in my communications to your journal, I have neglected to use chemical parlance and symbols, it has not been because chemical works and their dictionaries have been out of my reach. On the contrary, I am the happy possessor of as well stocked a scientific library as any private individual in this country can boast; and I believe that I am, through it, familiar with all the theories of electrical action, even *static* and *dynamic*. I have likewise read some on the subject of decomposition and re-composition. And now, after this display of my acquirements, if you should ask why I have been so remiss in my communications, I would reply, that practical experiment has satisfactorily proven that many of the scientific terms employed to express cause and effect, are either totally inexpressive or suggestive of erroneous conclusions. For instance, the simple term "decomposition," as applied to the action of the electric fluid on water, does not express the true action or result, as no decomposition takes place, the true action being a *transformation* of the water into two sub-elements. [Proceedings of the Royal Society, Jan. 24, 1851.]

The terms "electro statics," and "electro-dynamics," (so learnedly handled by my friend Mr. Mathiot, in his communication of last week), when used in connection with the words "surface," and "solid section," to express different electrical action, have no force or meaning, no more so than if I were to say, that caloric, the product of friction, uses the surface of conductors, while that of combustion employs the solid section. The absurdity of such a remark is obvious, but it is a parallel with the one under consideration. The terms can properly apply only to the different modes of generating or exciting electric currents, and if different results are noted, they are not due to any peculiarity or difference in the currents or fluids so evolved, but to the quantity—the time of its traverse or contact with the conductor—[Proceedings of the Royal Society, Nov. 28, 1850], and more particularly the method of its discharge. Some of the conditions just named are acknowledged in the construction of the ordinary magneto-electric machines; those intended for experiments in "decomposition" of water, having their helices composed of short coils of large wire, while the machines used for giving shocks have their coils of great length and of very fine wire. Now the weight of the helices of both machines may be precisely alike, and therefore, as far as the sum total of the solid section of conductors is concerned, there is no difference in their construction, but their action is very different.

Most of my antagonists wind up their arguments with some past reference to my ignorance. I have no objection to their entertaining such views of my wisdom as they see fit, but I do protest against their pirating my ignorant notions. Mr. Mathiot says, "it was no secret to me that camphene would render hydrogen effulgent." This assertion I deny For nearly a year I had been made the butt of ridicule for claiming to have discovered that nascent hydrogen could be rendered luminiferous by passing it through turpentine. No one knows better than yourselves what a torrent of abuse was poured upon me for months—ignoramus and humbug were terms comparatively flattering, when coming from the public press, after an eminent scientific committee swore by their noses that I was a false pretender. At length Mr. Mathiot appeared in your columns; but in what manner did he claim to have been familiar for a long time with the process—that "it was no secret to him?" No, on the contrary, he gave to the world a statement of experiments that he had *just tried*—experiments that were suggested by my assertions, and tried as tests of their correctness. I need not enlarge on this subject, —your readers have his communications before them.

Another ignorant emanation of mine found its way before the Royal Society, London, in December last, in the form of a paper on the magnetic properties of oxygen; and on the 21st of the next month, a paper was read before the same society, on the transformation of water into the gaseous state. Both of these papers were read as original, when it was a notorious fact that I had, for five years past, suffered everything but martyrdem for publicly claiming and daring to demonstrate the same facts.

As regards Mr. Mathiot's remarks on Mr. Colton, I would reply to them that Mr. C. came to my place with the determination of exposing a humbug, he brought with him a fair chemist—a gas engineer and an eminent mechanic—Mr. Ames, of Springfield. The apparatus was submitted to their control, worked and taken to pieces, and the public have their report. I submit whether the testimony of such men, under such circumstances, is to be controverted by the "because" of an individual who has only had the conductors in his hands. Yours, HENRY M. PAINE.

Fossil Tree in Coal Rocks.

The Westmoreland Intelligencer contains a description of a curious discovery, made in excavating for the Pennsylvania Railroad, near Greensburgh, Westmoreland county, Pa. A fossil tree, of "immense magnitude" has been laid bare, lying prostrate, about four feet above the Pittsburgh seam of coal, imbedded in solid sandstone thirty feet below the surface. The part which was removed measured twenty-six feet in length, and two feet ten inches in circumference at the base. From the size of the two main branches which enter the rock on the opposite side, it is inferred that this tree may have been from thirty to fifty feet in length. At the base it was much flattened by the pressure of the superincumbent weight, but the branches still retain their cylindrical form.

It was entirely enveloped by a coating of pure and beautifully crystallized bituminous coal, measuring from a quarter to an inch in thickness.

Its interior was filled with sand, mixed with the carbonate and sulphuret of iron, but exhibiting no appearance of transvere bands, nor any other indication of vegetable structure. The bark, which alone remains, converted into pure but friable coal, may have surrounded an axis of more perishable material, which, when the tree was removed from its original position by the storms or the waves, rapidly decayed, whilst the trunk and its branches still floated in the agitated waters of the ocean. Its hollow interior would necessarily be filled with sand, broken shale or other sediment, which was brought by large rivers into that turbulent sea whose bed was rapidly subsiding. This view is corroborated by the fact that the rock in which this plant is found imbedded, presents an entirely different appearance in color, and lithological character from that which fills the interior of the fossil tree.

Although there were the usual longitudinal flutings so peculiar to this family of plants, both along the main trunk and its branches, none could discover but few indications of those beautiful scars which mark the spot where the peticles of the leaves articulated with the stem.

In a scientific point of view, the discovery of this tree is of much interest and importance, for it is hoped it will set at rest among geologists the much vexed and long discussed question whether the genus to which this plant belongs, a genus which contributed so largely to the formation of coal, belongs to arborescent ferns, gigantic palms, or lofty pines.

Petition Against Blood-Letting.

A Dr. Wm. Turner, of New York City, has petitioned the Legislature of the State to pass a law making the use of the lancet in diseases a penal offence. He says he has practiced medicine for half a century, and his experience convinces him that the habit of bleeding is destructive of health and life. We may put down Dr. Wm. Turner as a very bold member of the faculty.

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TO CORRESPONDENTS.

J. B., of N Y.—We nave searched for Mr. Harrison's claim and cannot find that a patent was granted him. No less than about 180 patents have been granted on grist mills, and 40 for improvements on mill stones. We candidly state that we doubt the possibility of securing a patent for you.

J. P., of N. Y.--Your triangle is not clear. There is no regular rule, that we can find, for their perfect construction. Your form appears to be good; let those who point out its defects state what they are. The only rule near to a definite one, that we can give, is to have the legs 1-3d longer than the base. Experiment is the true test of the best form, as the theory of sound is not yet well understood by instrument makers.

S. R. P., of M.—If the question is so simple, why do you not demonstrate it practically, and at once floor those who hold different opinions from you; you have a very un-simple way of stating it. Your opinion last sent is totally different from the previous ones, and is still not correctly stated, but we understand you, and you are wrong. The man exerting 400 lbs. upon the 2 1-2 feet end from the oar lock, will move the boat faster than the man exerting 200 lbs. upon the 5 feet end—10 feet being outside of both. No pressure is lost by a short, and none is gained by a long lever, when velocity is the issue. We hope you are satisfied—we are.

G. McE., of Ohio.—Try glue with some alum in it, for the first two coats, but we know of no varnish to supersede the copal—at least to be as durable. If we fall in with one you shall hear from us through the paper.

A. H., of N. Y.—The specimens of mineral which you send appear to be a mixture of clay, some very fine sand, and lime, colored with the red oxide of iron. Such specimens are generally found on the surface of a strata of the brown hematite of iron. There must be iron ore about the place, but whether it is dense enough to pay for working, is the question; the specimens you sent are not, although easily melted.

J. W. N., of Phila.—You will see by our last number that we sent and obtained a correct copy of your claim from the P. O, We will wait for the F. Journal and communicate with you then. It needs to be very particularly described so as to give a simple and easily understood idea of its merits; this is wanted for it on your own account, so as to make a favorable impression.

H M., of Vt.—To illustrate the plane we would like a more complete drawing. We like to have such things exhibit, as clearly as possible, the whole principle of construction: we like to present all improvements in tools. We do not know anything about Mr. Blye's.

J. A. S., of Mo.—We have some oscillating engines in this city which obviate all the objections you speak of, and which, from their simplicity, can be built cheaper, and surpass anything we ever saw. Our opinions are unchanged, but we are not unchangeable. We endeavor to be candid.

O. C., of Ohio.—Your drawing is rather obscure; it appears to us that your plan is similar in principle to that of "Adams'."

O. C, of Ohio.—We do not think a patent could be obtained for the nib; rivetting the nut into the band appears to us to possess nothing of a patentable character. We do not see what advantage you could gain from the elastic wheel; if you can show any we can better advise you in regard to its patentability.

A. P., of Ind.—You will see that each has a patent, but if W. H. establishes at law that he exposed a model, the same as the invention claimed by W. C., then he will be considered the original inventor, and the patent of W. C. becomes void. He cannot obtain damages for any machine used before he made application for a patent, but he can for every one after that.

E. W, of N. Y.—We referred you to Kittle's because the action of yours and his appeared to be the same. Mr. Page, of Rochester, grooved his planks with reciprocating side cutters, moved by cranks; Kittle's claim is based upon the crank and vibratory arm. The action of his (we have seen it operated) appears to be the very same as yours; we believe the principle is essentially alike.

W. & P., of Pa.—We will say nothing more upon the subject, but to us it appears that the improvement lies in the change from an unreasonably expensive fuel to a more economical method, just like the change in our steamboats from using *pine* to using anthracite.

J. R., of N. Y.—We will give yours attention.

C. M. J., of ——.—The American standard bushel is 2,150·42 cubic inches (dry capacity). It is the same as the Winchester bushel, unless the law has been changed since the 1st of July, 1850.

H. H. M., of Illinois.—Your device as a substitute for the crank has been carefully examined, and we are of the opinion that it is different from any other ever brought forward. It might answer a good purpose for small engines, but the use of clicks and racks would never do for large sized engines: they have been condemned by practical engineers. We are candidly of the opinion that you would never realize any profit from it, as there exists a great prejudice against such contrivances. Past experience keeps it alive, whether just and right or not.

T. D. D., of Vt.—If there should be no understanding between yourself and the patentee, you could sell the spokes in all markets. There is no provision in the Patent Law to prevent this, but the patentee may bind you in the assignment. We do not know the price of the lathe; perhaps Thos. Blanchard, of Boston, can advise you.

S. D. W., of N. Y.—There is nothing patentable in the device for connecting thills, &c.; it is the application of a well-known principle to a new purpose, and therefore is not patentable.

H. R., of Mass.—We have no sketch of your Bench Hook; if you will make one with pencil, and forward it to us, it will be examined; we should not care to engage in their sale. No. 23, Vol. 3 cannot be supplied. $2 received.

N. M, of N. Y.—A machine for bending wood was patented last year by Thos. Blanchard, of Boston, and information in regard to its cost can be had on application to him. Oak strips, cut to the size of ordinary felloes, would steam sufficient in 30 minutes, we think.

L. H., of Ohio.—We could tell by examining a sketch of your engine, whether it is new or not; you are aware of the existence of a vast number, none of which appear to amount to much. The description is not sufficiently clear to afford us an understanding of its operating value.

W. T. S., of Miss.—We do not know that Bogardus's engraving machine can be obtained in this city, you can ascertain by addressing Jas. Bogardus, cor. Centre and Duane sts., this city. We sell cameras suitable for landscape sketching for $6. The best quality of Voigtlander's Cameras for daguerreotypes are $135; half size, $60; medium, $40. Ordinary full-sized cameras can be had for $80, of John Roach, 79 Nassau st., N. Y.

F. L., of Me.—We have an edition of the Patent Laws in press, which will be issued in about 10 days, when we will forward to you a copy by mail. The amount of money you sent we have credited on account of your subscription, although we do not find your name on our books.

S. I., of N. Y.—Your specification was amended as you suggested previous to forwarding to the Pat. Of.

J H. R., of Mass.—There is nothing new or patentable in your arrangement of the disc knives; essentially the same device has been shown us several times. We had a model, recently, in this office, of the same thing.

J. P. A., of Ky.—We are informed that Messrs. Todd & Mackay, of Paterson, N. J., manufacture good machinery for carding hemp, and at low prices.

J H., of N. Y.—The price of the work you refer to is $1.

J. H. E., of Iowa.—By such an arrangement as you propose, we should think it would not infringe upon any other in use. It is probable that a patent might be obtained; we could answer this point better if you would furnish us with a sketch and description of the combination.

——, of Charleston, S. C.—We have received $4 in a letter, with instructions to forward 5 copies of the Sci. Am. for 6 mos. The letter contained no signature but is supposed to be from Wm. Lebby, to whom we have credited the amount. Is that right friend Lebby?

Money received on account of Patent Office business since March 19 :—

W. B., of N. Y., $20; J. D. C. C., of Mass., $30; W. H. C., of Miss., $40; A. J., of S. C., $55; R. F. B., of N. Y., $45; D. W., of N. Y., $50; A. W. D., of N. Y., $30; S. F., of N. Y., $10; L. D. G., of Mass., $21; H. R. R., of Vt., $55; J. C. S., of N. Y., $20; H. P., of Mass., $30; C. A., of Pa., $25, and J. K. G., of Canada, $500.

Specifications and drawings of inventions belonging to parties with the following initials, have been forwarded to the Patent Office since March 19 :

W. B., of N. Y.; S. F., of N. Y.; I. V. K., of Mass.; L. D. G., of Mass.; J. C. S. of N. Y.; R. F. B., of N. Y.

Patent Claims.

Persons desiring the claims of any invention which has been patented within fourteen years can obtain a copy by addressing a letter to this office; stating the name of the patentee, and enclosing one dollar as fee for copying.

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Branches of our Agency have been established in London, under the charge of Messrs. Barlow, Payne & Parken, celebrated Attornies, and Editors of the "Patent Journal;" also in Paris, France, under the charge of M. Gardissal, Editor of the "Brevet d'Invention." We flatter ourselves that the facilities we possess for securing patents in all countries where the right is recognized, are not equalled by any other American house. MUNN & CO.,
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WOODWORTH'S PATENT PLANING MACHINES: 1851 TO 1856.—Ninety-nine hundredths of all the planed lumber used in our large cities and towns continues to be dressed with Woodworth's machines. Persons holding licenses from the subscriber are protected by him against infringement on their rights. For rights in the unoccupied counties and towns of New York and Northern Pennsylvania, apply to JOHN GIBSON, Planing Mills, Albany, N. Y. 23 7eow*

WILLIAM W. HUBBELL---Attorney and Counsellor at Law, and Solicitor in Equity, Philadelphia, Penn.

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28 1amtf

LATHES FOR BROOM HANDLES, Etc. We continue to sell Alcott's Concentric Lathe, which is adapted to turning Windsor Chair Legs, Pillars, Rods and Rounds; Hoe Handles, Fork Handles, and Broom Handles.

This Lathe is capable of turning under two inches diameter, with only the trouble of changing the dies and pattern to the size required. It will turn smooth over swells or depressions of 3-4 to the inch, and work as smoothly as on a straight line, and does excellent work. Sold without frames for the low price of $25—boxed and shipped, with directions for setting up. Address, (post paid) MUNN & CO.,
At this Office

PORTABLE GRIST MILLS—Of the best construction, at the following prices :—12 inch hand mill, $40; 16 in. do., $45; 18 in. Burr stone, power, $90; 24 inch do. $100; 30 in. do., $150. $15 additional for the 18 and 24 inch; the 12 and 16 inch are geared with cranks. The 30 inch is driven from the spindle; 18 in., 2 horse power, will grind 4 bushels per hour; 24 in., 3 horse, 5 bushels; 30 in., 4 horse, from 6 to 8 bushels; speed, 300 revolutions per minute. Address (post-paid) to MUNN & CO.,
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TO LUMBER DEALERS.---Law's Planer having undergone important alterations, is now perfected and in successful daily operation, facing and matching at the same time, and in both respects, in a style not to be surpassed. The common objection that machines are expensive in repairs, is not applicable to these new machines—they are simple, strong, and easily kept in order. It is confidently believed that when they are well known they will have a decided preference over any other machine or mode of planing. Planing of all kinds done at short notice, corner of Water and Jay sts., Brooklyn. Law's Stave Machine dresses and joints staves of all kinds, shapes, and widths, by once passing through. Rights or machines for sale by H. LAW, 216 Pearl street, or after 1st March, at 23 Park Row. 21 8

IRON FOUNDERS MATERIALS—viz., fine ground and Bolted Sea Coal, Charcoal, Lehigh, Soapstone and Black Lead Facings of approved quality. Iron and brass founders' superior Moulding Sand, Fire Clay, Fire Sand, and Kaolin; also best Fire Bricks, plain and arch shaped, for cupolas &c.; all packed in hogsheads, barrels or boxes for exportation, by G. O, ROBERTSON, 4 Liberty Place, near the Post Office, N. Y. 22 3m*

MATAPAN MACHINE WORKS—Corner of Second and A sts., South Boston. The undersigned have recently enlarged their business and are now prepared to offer a great variety of Machinists' Tools, viz., Engine and Hand Lathes, iron Planing and Vertical Drilling Machines, Cutting Engines, Slotting Machines, and Universal Chucks; also Mill Gearing and Wrought Iron Shafting made to order.
22 12* GEO. HEPWORTH & SON.

PATENT DREDGE BOAT.---The subscriber having obtained a patent for improvements on the Dredge Boat, offers to sell rights to build and to use his Patent Dredge Boat in any part of the United States; the excavating apparatus consists of twenty scoops, preceded by plows receiving great pressure, and are capable of raising eight or ten cubic yards of mud or gravel per minute; the scooping apparatus may be fitted on an old steamboat or other vessel, for the purpose of removing bars or other obstructions to navigation. A working model may be seen by calling on the subscriber. JAMES CALLAGHAN,
20 10* No. 64 Spruce st., New Bedford, Mass.

PATENT BREAD CUTTER—The subscriber will sell rights for this very valuable article, for a single State or for all the States except Vermont, Maine, Massachusetts, Rhode Island, Connecticut, New York, Missouri, Illinois, and Iowa, on reasonable terms. The Cutter will be wanted in almost every family, and will sell readily at a large profit to the manufacturer. Personal application or by letter, post paid, to the subscriber, at Berlin, Conn., will receive prompt attention. FRANKLIN ROYS. 25 4*

SASH AND BLIND MACHINE—Patented by Jesse Leavens, Springfield, Mass. The machine planes, molds, mortises, bores, tennons, copes, franks, cuts off, rips up the stuff, planes the blinds, shades, and sets out the sash The machine is 4 by 5 feet, weighs 800 lbs., requires two horse-power to drive it, and cost $300 cash—extra charge for the right to use. Shop, town, county, and State rights for sale. Orders from abroad will be promptly attended to by addressing JESSE LEAVENS, Palmer Depot, Mass.
27 8*

FELLY CUTTING MACHINE—Messrs. JOSEPH ADAMS & SONS, Amherst, Mass., offer for sale town, county, and State rights, or single machines, with the right to use, of their unrivalled Felly Cutting Machine, illustrated in No. 5, Vol. 6, Scientific American. It is portable, easily kept in order, requires but little power to drive it, and will execute in the most rapid and perfect manner, cutting 60 good fellys in one hour. 27 8*

WANTED—A Practical Machinist who can command from $500 to $3,000, to become interested as partner in a Foundry and Machine business which is already established. None but such as can furnish undoubted testimonials for skill, energy, and character, need apply. For particulars address "D. J. M.," care of Munn & Co., N. Y. 27 2*

STEAM ENGINE FOR SALE—We have for sale a 12 horse-power Horizontal Engine, complete, with flue boiler, second-hand, newly re-fitted, in excellent condition, has not been used to injure it; solid cast iron frame, manufactured by the "Novelty Works," this city. Its original cost was $1,450, and will now be sold for $900 cash, the owner having no further use for it. Apply to MUNN & CO. 27tf

WANTED IMMEDIATELY—Five Machinists who can work in wood and iron. Steady employment will be given. Apply to JACOB GRAY, Scotia, near Schenectady, N. Y. 1*

DICK'S GREAT POWER PRESS.—The public are hereby informed that the Matteawan Company, having entered into an arrangement with the Patentee for the manufacture of the so-called Dick's Anti-Friction Press, are now prepared to execute orders for the following, to which this power is applicable, viz.—Boiler Punches, Boiler Plate Shears, Saw Gummers, Rail Straighteners, Copying and Sealing Presses, Book and Paper Presses, Embossing Presses, Presses for Baling Cotton and Woollen Goods—Cotton, Hay, Tobacco, and Cider Presses; Flaxseed, Lard, and Sperm Oil Presses; Stump Extractors, &c. &c. The convenience and celerity with which this machine can be operated, is such that on an average, not more than one-fourth the time will be required to do the same work with the same force required by any other machine.
WILLIAM B. LEONARD, Agent,
13tf No. 66 Beaver st., New York City.

MACHINES FOR CUTTING SHINGLES. The extraordinary success of Wood's Patent Shingle Machine, under every circumstance where it has been tried, fully establishes its superiority over any other machine for the purpose ever yet offered to the public. It received the first premium at the last Fair of the American Institute—where its operation was witnessed by hundreds. A few State rights remain unsold. Patented January 8th, 1850,—13 years more to run. Terms made easy to the purchaser. Address, (post-paid) JAMES D. JOHNSON, Redding Ridge, Conn., or Wm. WOOD, Westport, Conn.. All letters will be promptly attended to. 10tf

GURLEY'S IMPROVED SAW GUMMERS—for gumming out and sharpening the teeth of saws can be had on application to G. A. KIRTLAND, 205 South st, N. Y. 10tf

SCRANTON & PARSHLEY, Tool Builders, New Haven, Conn., will have finished 2 Power Planers ready to ship by the 1st of Feb., that will plane 9 feet long, 31 inches wide, and 24 inches high, with angle feed; counter shaft, pullies, and hangers, splining and centre heads, with index plate, and weigh over 5,000 lbs.; also 2 power planers that will plane 5 feet long, 22 in. wide, and 20 in. high, with counter shaft, pullies, and hangers, and weigh 2,400 lbs.—These planers are 25 per cent. lower than any others built. Cuts can be had by addressing as above, post paid. 19tf

TO PAINTERS AND OTHERS.—American Anatomic Drier, Electro Chemical graining colors, Electro Negative gold size, and Chemical Oil Stove Polish. The Drier, improves in quality, by age—is adapted to all kinds of paints, and also to Printers' inks and colors. The above articles are compounded upon known chemical laws, and are submitted to the public without further comment. Manufactured and sold wholesale and retail at 114 John st., New York, and Flushing, L. I., N. Y., by
QUARTERMAN & SON,
22tf Painters and Chemists

MACHINERY.—S. C. HILLS, No. 12 Platt Street, N. Y., dealer in Steam Engines, Boilers, Iron Planers, Lathes, Universal Chucks, Drills Kase's, Von Schmidt's, and other Pumps, Johnson's Shingle machines, Woodworth's, Daniel's and Law's Planing machines, Dick's Presses, Punches, and Shears; Morticing and Tennoning Machines, Belting, machinery oil; Beal's patent Cob and Corn Mills; Burr Mill, and Grindstones, Lead and Iron Pipe, &c. Letters to be noticed must be post paid. 26tf

BAILEY'S SELF-CENTERING LATHE, for turning Broom and other handles, swelled work, chair spindles, &c.; warranted to turn out twice the work of any other lathe known—doing in a first rate manner 2000 broom handles and 4000 chair spindles per day, and other work in proportion. Orders, post-paid, may be forwarded to L. A. SPALDING, Lockport, N. Y. 21tf

FOREIGN PATENTS.—PATENTS procured in GREAT BRITAIN and her colonies, also France Belgium, Holland, &c., &c., with certainty and dispatch through special and responsible agents appointed, by, and connected only with this establishment.—Pamphlets containing a synopsis of Foreign Patent laws, and information can be had gratis on application
JOSEPH P. PIRSSON, Civil Engineer,
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16tf. THOMAS J. FALES.

FOWLERS & WELLS, Phrenologists and Publishers, Clinton Hall, 131 Nassau st., New York—Office of the Water Cure and Phrenological Journals. Professional examinations day and evening. 3 6m

MANUFACTURERS' FINDINGS and Leather Binding.—The subscriber is prepared to offer a large assortment of manufacturers' Findings for Cotton and Woollen Factories, viz., bobbins, reeds, harness, shuttles, temples, rockers, harness twines varnish, roller cloth, card clothing, card stripper and clamps, calf and sheep roller, leather, lace, and picker string, potato & wheat starch, oils, &c. Leather Banding, of all widths, made in a superior manner from best oak tanned leather, rivetted and cemented.
15 3m P. A. LEONARD, 116 Pearl st.

LAP-WELDED WROUGHT IRON TUBES for Tubular Boilers, from 1 1-4 to 7 inches in diameter. The only Tubes of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine, and other Steam Engine Boilers.
THOS. PROSSER & SON, Patentees,
16tf 28 Platt st., New York.

BROOM MACHINERY.—The most improved and durable machinery for the manufacture of Brooms, for sale by JACOB GRAY, Scotia, Schenectady Co., N. Y. Address post-paid. 22 8*

LEONARD'S MACHINERY DEPOT, 116 Pearl st., N. Y.—The subscriber has removed from 66 Beaver st. to the large store, 116 Pearl st., and is now prepared to offer a great variety of Machinists' Tools, viz., engines and hand lathes, iron planing and vertical drilling machines, cutting engines, slotting machines, universal chucks, &c. Carpenters' Tools—mortising and tennoning machines, wood planing machines, &c. Cotton Gins, hand and power, Carver Washburn & Co.'s Patent. Steam Engines and Boilers, from 5 to 100 horse power. Mill Gearing, wrought iron shafting and castings made to order. Particular attention paid to the packing, shipping, and insurance, when requested, of all machinery ordered through me. P. A. LEONARD.
15 3m

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Scientific Museum.

Scientific Memoranda.

NEW STEAM CARRIAGE FOR THE STREET.—In the *Avenir Republician*, of St. Etienne, France, is given an account of the appearance in that town of a new steam-carriage for ordinary roads, invented by M. Verpileux, of Vive-de-Gier, who represented the Loire in the Constituent Assembly. The carriage in question went through all the streets of the town with the greatest facility, under the most perfect control of the man sitting in front, turning it to the right or left, or sending it backwards or forwards as he pleased. Two cabriolets, filled with some of the friends of the inventor, were attached to the carriage; as was, afterwards, a heavy cart of coals, which it carried from La Croix de l'Horne to the lime kilns of Mr. Jackson. The carriage weighs two tons, and is of four-horse power. It runs on three wheels, and its speed is ten miles an hour. Its consumption of coke is exceedingly small. A new vehicle on the same principle, but of twelve horse power, is now in course of construction; it will be able, it is said, to move four coal-wagons with a weight of 12,000 kilogrames (24,000 lbs.) It is intended shortly to employ this mode of locomotion for carrying the coals of Bessage to the Rhone and those of Firminy to the Lyons railway.

[Steam carriages for commmon roads are not new by any means. They have been tried in England a number of times, but never could be made to pay.

ARSENIC IN BREAD.—In a recent lecture on muriatic acid, at the Glasgow Mechanics' Intitution, Dr. Penny stated that nearly all the muriatic acid sold in Glasgow is contaminated with arsenic. The doctor said he had examined very carefully numerous samples obtained from different makers and retail shops, in all of which, with one exception, he had discovered, by Reinsche's test, the presence of an appreciabble proportion of this poisonous substance. Now, it is well known that muriatic acid, with other chemical articles, is used very frequently as a substitute for yeast in the making of bread. It therefore really becomes a very serious question whether the employment of an impure acid, like that mentioned, for making such an essential article of food as bread, may not be attended with highly injurious consequences.

In America, we need have no fears of arsenic in our bread, because the yeast is home-made, hops forming the principal ingredient. In Scotland we believe the common people do not bake their own flour bread, the same as our people. There are no ovens in the houses of common people, oatmeal bread is the common kind, all flour bread is made by professional bakers. It would be well if some of our domestic customs were introduced into that country.

A NEW OMNIBUS.—A new omnibus has been introduced into London, so arranged that every passenger has a door, a seat and a window for himself, with a gutta percha tube through which to convey orders to the cad. The arrangement is most ingenious. The only difficulty is, that friends getting in have no opportunity of saying a word to each other until the journey is performed Connected with every seat, or cell, or box, whichever it may be called, is a self-acting machine for registering the daily number of passengers.

For the Scientific American.

Depilatory Powder and Manipulating the Eyes.

In a late number you gave a copy of a foreign receipt for a depilatory powder. I will here say that I am curious and inquisitive about such matters, and tried it several times to no purpose, or without it taking the least effect. Your correspondent, "H. P. H.," is perhaps in the same situation. If he is very anxious I will give him a receipt which I tried some years and found to answer the purpose. Take equal parts of king's yellow, orpiment, or yellow arsenic, and quick lime, mixed and moistened, and apply it to the parts you wish to clear of hair, and in a few minutes the hair will disappear, and if it would be any advantage to him, I doubt not but he could soon remove the skin as well, by the same application. I agree with you in not recommending the constant use of lime. Last September a shopmate and myself commenced to manipulate the eyes several times a day, according to the direction of J. Q. Adams, to see if we could thereby restore decayed sight, from age, and read without the use of spectacles; I am sorry to say, however, that although we continued the process for several months very regularly and faithfully, yet we derived no benefit, and so discontinued it entirely.

JOHN ADAMS.

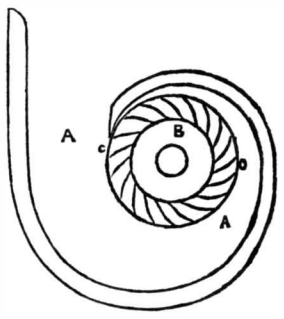
Rochester, N. Y., 17th March, 1851.

For the Scientific American.

Hydraulics.

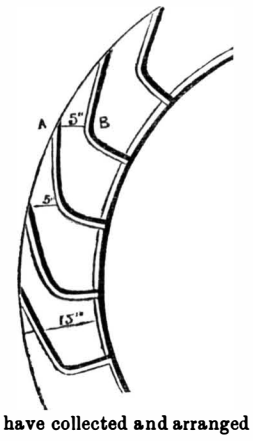
(Continued from page 216.)

FIG. 37.



The accompanying figure 37 is a plan view of a Centre-vent Wheel, and is named Rich's, after its inventor and patentee, Reuben Rich, Salmon River, Oswego Co., N. Y. The water is conducted by a circular guide or shute on to the wheel, in the direction of its motion. This may appear contrary to the idea of those who are unacquainted with such things. The water passes from the outside through the curved buckets, and the projection of the water—its discharge at the centre—gives it the motion contrary to the discharge, but in the direction of the water. A is the spiral shute; C is the bucket rim of the wheel, and B is the plate of it. The singular feature of a centre discharge wheel, is, that they do not consume water in proportion as the velocity is increased, consequently there must be a nullifying of useful action by centrifugal action. The curve of the buckets is nearly of an S form. This wheel has been highly spoken of by a great number who have used and are now using it.

FIG. 38.



As we have collected and arranged more information upon this subject than has ever been presented or is to be found in any work, and as our aim has been to notice American hydraulic motors particularly, especially the Reacting Water Wheels, we must be excused if the whole of the information has not been arranged in such regular order as we could have wished. We have no hesitation in saying, however, that when these articles are completed they will be found to embrace much to be found no where else.

We will treat this week, and perhaps two weeks, on Ventilation of Buckets, after which we will resume the subject of the Turbine Wheels.

From a work entitled "Mecaniques et Inventions approuves par l'Academie Royale des Sciences," published at Paris in 1735, it appears, that previous to the commencement of the last century, neither the breast nor the overshot water-wheels were much in use, if at all known; and at what period, and by whom they were introduced, is probably equally uncertain. The overshot wheel was a great improvement, and its introduction was an important step in the perfecting of hydraulic machines; but the breast-wheel, as now generally made, is a still further improvement, and is probably better calculated for effective duty under the circumstances of a variable supply of water, to which almost every description of water-wheel is subjected. Improvements have taken place during the last and the present centuries. The breast-wheel has taken precedence of the over-shot wheel, not so much from any advantage gained by an increase of power on a given fall, as from the increased facilities which a wheel of this description, having a larger diameter than the height of the fall, affords for the reception of the water into the chamber of the bucket, and also for its final exit at the bottom.

Another advantage of the increased diameter is the comparative ease with which the wheel overcomes the obstruction of back-water. The breast-wheel is not only less injured from the effects of floods, but the retarding force is overcome with greater ease, and the wheel works for a longer time and to a much greater depth in back-water.

The late Dr. Robinson, Professor of Natural Philosophy in the university of Edinburgh, in treating of water-wheels, says, "There frequently occurs a difficulty in the making of bucket-wheels, when the half-taught millwright attempts to retain the water a long time in the buckets. The water gets into them with a difficulty which he cannot account for, and spills all about, even when the buckets are not moving away from the spout. This arises from the air, which must find its way out to admit the water, but is obstructed by the entering water, and occasions a great sputtering at the entry. This may be entirely prevented by making the spout considerably narrower than the wheel: it will leave room at the two ends of the buckets for the escape of the air. This obstruction is vastly greater than one would imagine; for the water drags along with it a great quantity of air, as is evident in the water-blast, as described by many authors."

In the construction of wheels for high falls, the best proportion of the opening of the bucket is found to be nearly as five to twenty-four; that is, the contents of the bucket being 24 cubic feet, the area of the opening, or entrance for the water, would be five square feet. In breast wheels which receive the water at the height of 10° to 12° above the horizontal centre, the ratio should be nearly as eight to twenty-four, or as one to three. With these proportions, the depth of the shrouding is assumed to be about three times the width of the opening, or three times the distance from the lip to the back of the bucket, as from A to B, fig. 38, the opening being 5 inches, and the depth of the shroud 15 inches.

For lower falls, or in those wheels which receive the water below the horizontal centre, a larger opening becomes necessary for the reception of a large body of water, and its final discharge.

In the construction of water wheels, it is requisite, in order to attain the maximum effect, to have the opening of the bucket sufficiently large to allow an easy entrance and an equally free escape for the water, as its retention in the bucket must evidently be injurious, when carried beyond the vertical centre.

Western Texas.

CORPUS CHRISTI SALT.—The N. O. Picune says the evidences of the great resources of Western Texas are every day increasing. Yesterday a specimen of natural salt, found eight miles from Corpus Christi, was handed us, which appeared perfectly pure, while it is stated the supply is inexhaustible. Carts are sent out, and the salt is shovelled in with little labor and expense. What gives it increased value is the fact that the beef, which is raised so extensively in that section can be much more easily cured with this salt than any other, as it takes or absorbs the salt with the greatest facility. It is further thought that this article, when ground, will make a fine salt for the table, and for all cooking purposes.

Geographical Discovery.

Prince Galitzin has announced, that, in the centre of the Sea of Aral, a group of islands have been discovered, to the principal of which the names of Nicholas I., Constantine and Lazareff have been given.

LITERARY NOTICES.

THE INTERNATIONAL MAGAZINE, for March, published by Messrs. Stringer & Townsend, 222 Broadway, contains a well arranged summary of the most prominent events which transpire throughout the world, besides the richest variety of literary labor from the most distinguished sources. It is one of the most readable and interesting magazines ever issued. $3 per annum: pp. 144.

THE LAW MAGAZINE.—The March number of this magazine contains voluminous articles on "Slavery and Commerce," "Recent American Decisions," and "Digest of Recent Cases." This magazine is very ably conducted, and contains matter of the deepest interest to every citizen in our land. It is not only a work for lawyers, but tradesmen and merchants. Every man should be acquainted with the laws under which he lives. Published by J. Livingston, 54 Wall street.

WESTERN HORTICULTURAL REVIEW—A monthly magazine devoted to the cause of a peculiar branch of Agriculture, and bearing the above title, has visited our "sanctum" for a few months past; it is edited by John A. Warder, M. D., Cincinnati. It is a very able work, and is devoted to a very interesting science. Trees, flowers, fruits, and herbs of all kinds, form the leading subjects of the articles. To every man who enjoys a cabbage plot, and every female who cultivates a rose, there is something in this magazine to instruct and please.

OVERMAN'S PRACTICAL MINERALOGY, ASSAYING, AND MINING.—This is the title of a most able and useful book, by Mr Overman, author of "The Manufacture of Iron," and is published by Lindsay & Blakiston, of Philadelphia. It treats of every mineral of any importance, and we have not noticed one that is neglected. It is a most useful book. The articles Slate, Soapstone, Sulphur, and Tripoli, in another column, are selected from it, and these will give some idea of this useful book. It is for sale by O. A. Roorback, 155 Broadway.

THE DOLLAR MAGAZINE appears for April in place of "Holden's," under the management of E. A. & G. L. Duyckinck. It is very neatly got up and contains several articles of merit and interest, all of which are entirely original from our first authors. This magazine merits a large subscribtion, and we have no doubt but that, under the new *regime*, it will fast make its way into popular favor. The terms are indicated by the title.

ICONOGRAPHIC ENCYCLOPEDIA.—Part 17 of this useful and beautiful work is now published and ready for sale by Mr. Rudolph Garrigue, No. 2 Barclay st., this city; it contains 20 plates, exhibiting various branches of nautical architecture, navigation, and the management of ships. There are more than 300 figures in the plates, and these of themselves are worth more than the price of the work, to purchase separately. This is a work which we can candidly recommend, as being the best illustrated Encyclopedia ever published.

ENGINEERS', MILLWRIGHTS', AND MACHINISTS' TABLES.—This is the title of a little work by Sereno Newton, and sold by George Carvill, No. 86 Cedar st., N. Y., for 50 cts. It contains tables of the proportional Radii of Wheels, from 10 to 400 teeth, with other tables and rules applicable to the construction of mill work and machinery; also rules for making wheel patterns. It is a very useful book. The tables are very carefully arranged and the information practical.

MECHANICS

INVENTORS
AND
MANUFACTURERS.

The Best Mechanical Paper
IN THE WORLD!
SIXTH VOLUME OF THE
SCIENTIFIC AMERICAN.

The Publishers of the SCIENTIFIC AMERICAN respectfully give notice that the SIXTH VOLUME of this valuable journal, commenced on the 21st of September last. The character of the SCIENTIFIC AMERICAN is too well known throughout the country to require a detailed account of the various subjects discussed through its columns.

It enjoys a more extensive and influential circulation than any other journal of its class in America.

It is published weekly, as heretofore, in *Quarto Form*, on fine paper, affording, at the end of the year, an *ILLUSTRATED ENCYCLOPEDIA*, of over FOUR HUNDRED PAGES, with an Index, and from FIVE to SIX HUNDRED *ORIGINAL ENGRAVINGS*, described by letters of reference; besides a vast amount of practical information concerning the progress of SCIENTIFIC and MECHANICAL IMPROVEMENTS, CHEMISTRY, CIVIL ENGINEERING, MANUFACTURING in its various branches, ARCHITECTURE, MASONRY, BOTANY,—in short, it embraces the entire range of the Arts and Sciences.

It also possesses an original feature not found in any other weekly journal in the country, viz., an *Official List of PATENT CLAIMS*, prepared expressly for its columns at the Patent Office,—thus constituting it the "*AMERICAN REPERTORY OF INVENTIONS.*"

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10 copies for 6 mos., $8 | 15 copies for 12 mos., $22
10 " 12 " $15 | 20 " 12 " $25

Southern and Western Money taken at par for subscriptions; or Post Office Stamps taken at their full value.

PREMIUM.

Any person sending us three subscribers will be entitled to a copy of the "History of Propellers and Steam Navigation," re-published in book form—having first appeared in a series of articles published in the fifth Volume of the Scientific American. It is one of the most complete works upon the subject ever issued, and contains about ninety engravings—price 75 cents.

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